

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.96
Test oil : ISO 4113
Combination No. : 0 402 846 067
Injection pump
Pump designation : PE6P120A320RS8015
EP type number : 0 412 826 016
Governor
Governor design. : RQV300...1050PA1225
Governor no. : 0 421 814 151
Cust. part No. : 11031773
: -P02 v.11/95

Customer-spec. information

Customer : VME
Motor : TD122KAE
Power kW : 243.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : -40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

A01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 11.00
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 9.30
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 236.0
Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 325

Rack travel in mm : 3.80
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1095
guide sleeve
travel mm : 7.90
Tolerance mm : +- 0.25

Rated speed rpm : 325
guide sleeve
travel mm : 2.09
Tolerance mm : +- 0.25

Rated speed rpm : 1028
guide sleeve
travel mm : 6.85
Tolerance mm : +- 0.25

Rated speed rpm : 387
guide sleeve
travel mm : 2.96
Tolerance mm : +- 0.25

Rated speed rpm : 437
guide sleeve
travel mm : 3.59

Tolerance mm : +- 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 4.67
Tolerance mm : +- 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 11.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1190

Rack travel in mm : 9.50
Tolerance mm : +- 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 236.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : +- 4.0

control lever
position degree : 125.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 8.30
Rated speed rpm : 1105
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1165

Tolerance 1/min : +- 15
rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 74.0
tolerance degree : +- 4.0

control lever
position degree : 10.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 5.40

Testing:

Rated speed rpm : 325
rack travel mm : 3.80
Tolerance mm : +- 0.30

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 9.30
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 9.30
Tolerance mm : +- 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.80
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 520
rack travel mm : 1.30
Tolerance mm : +- 0.20

Pressure hPa : 290
rack travel mm : 0.25
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 188.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 3.80
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.11.96
Test oil : ISO 4113
Combination No. : 9 407 083 282
Injection pump
Pump designation : PES6A90D320RS2605
EP type number : 9 400 083 078
Governor
Governor design. : RSV325...1400A2B2096
: R
Governor no. : 9 420 083 168
Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : TD 229-6
Power KW : 95.6

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 922 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 65.5

Tolerance
cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 6.50

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : +- 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 strokes : +- 0.5
Check tolerance
cm³/1000S. : +- 2.5

A06

Spread
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 56.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 7.00
Rated speed rpm : 1445
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1480
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 23.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.00
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 6.50
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 650
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 3.05
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 8.95
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 8.55
Tolerance mm : \pm 0.15

Rated speed rpm : 1200
rack travel mm : 8.10
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 6.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.04.94
Test oil : ISO 4113

Combination No. : 0 402 796 201

Injection pump
Pump designation : PES6H120/720/3LS1001
EP type number : 0 412 726 201

Governor
Governor design. : RE33
Governor no. : 0 421 890 354

Cust. part No. :

Customer-spec. information
Customer : MAIN
Motor : D2866LF14

TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15

Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750

Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 309.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm3/1000 strokes : 304.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm3/1000 strokes : 168.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 65.0
Check tolerance
cm3/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 173.0
Check tolerance
cm³/1000s. : \pm 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113
Combination No. : 0 402 648 932
Injection pump
Pump designation : PE8P120A320LS7849
EP type number : 0 412 628 864
Governor
Governor design. : RQV300...1050PA1034
Governor no. : 0 421 813 993

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D 9308 TI
Power KW : 360.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 7- 2- 6
 : - 3- 5- 4
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 15.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 263.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 780
guide sleeve
travel mm : 6.60
Tolerance mm : ± 0.30

Rated speed rpm : 350
guide sleeve
travel mm : 1.90
Tolerance mm : ± 0.20

Rated speed rpm : 405
guide sleeve
travel mm : 2.65
Tolerance mm : ± 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 4.40
Tolerance mm : ± 0.20

Rated speed rpm : 1118
guide sleeve
travel mm : 10.50
Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 14.00
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 263.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 14.00
Rated speed rpm : 1105
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : ± 15

rack travel mm : 0.70
Tolerance mm : ± 0.70
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.05
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 15.05
Tolerance mm : \pm 0.05

Rated speed rpm : 700
Pressure hPa : -
rack travel mm : 11.80
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 870
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Pressure hPa : 1130
rack travel mm : 14.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 194.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.97
Test oil : ISO 4113

Combination No. : E 040 086 800

Injection pump
Pump designation : PES4A100D320/3RS35..
EP type number : 0 041 083 700

Governor
Governor design. : RSV400...1100AOC....
Governor no. : 0 042 088 200

Cust. part No. : TATA-CUMMINS

Customer-spec. information
Motor : 4BT-90 PS/2200
Power KW : 66.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.60
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.50
Tolerance mm : ± 0.05

| | | |
|--|---|---------|
| Del. quantity cm ³ /1000 strokes | : | 93.3 |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | +/- 1.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | +/- 3.0 |
| <hr/> | | |
| Spreed | | |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | 4.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | 6.5 |
| <hr/> | | |

| | | |
|--|---|----------|
| Rated speed rpm | : | 400 |
| | | |
| Rack travel in mm | : | 999.00 |
| Tolerance mm | : | +/- 0.10 |
| Del. quantity cm ³ /1000 strokes | : | 10.7 |
| Tolerance cm ³ /1000 strokes | : | +/- 2.0 |
| Check tolerance cm ³ /1000S. | : | +/- 4.5 |
| | | |
| Spreed | | |
| | | |
| Tolerance cm ³ /1000 strokes | : | 6.0 |
| Check tolerance cm ³ /1000S. | : | 8.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|-------------------|---|----------|
| control lever | | |
| position degree | : | FREE |
| Rated speed rpm | : | 800 |
| | | |
| Rack travel in mm | : | 0.50 |
| Tolerance mm | : | +/- 0.20 |
| | | |
| governor spring | | |
| pre-tension | : | |
| click setting x | : | 4.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1100 |
|-----------------|---|------|

| | | |
|--|---|---------|
| Aneroid pressure | | |
| hPa | : | 1000 |
| | | |
| Del. quantity cm ³ /1000 strokes | : | 93.3 |
| Tolerance cm ³ /1000 strokes | : | +/- 1.0 |
| Check tolerance cm ³ /1000S. | : | +/- 3.0 |
| | | |
| Spreed | | |
| | | |
| Tolerance cm ³ /1000 strokes | : | 4.0 |
| Check tolerance cm ³ /1000S. | : | 6.5 |

CONTROL LEVER

| | | |
|------------------|---|---------|
| control lever | | |
| position degree | : | 106.0 |
| tolerance degree | : | +/- 4.0 |

RATED SPEED

| | | |
|-----------------|---|-------|
| rack travel mm | : | 11.50 |
| Rated speed rpm | : | 1145 |
| Tolerance 1/min | : | +/- 5 |

| | | |
|-----------------|---|-------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1250 |
| Tolerance 1/min | : | +/- 5 |

| | | |
|-----------------|---|----------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | +/- 0.55 |
| Rated speed rpm | : | 1300 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1260 |
| Tolerance 1/min | : | +/- 15 |

LOW IDLE

| | | |
|------------------|---|---------|
| control lever | | |
| position degree | : | 86.0 |
| tolerance degree | : | +/- 4.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 400 |
| rack travel mm | : | 999.00 |
| Tolerance mm | : | +/- 0.10 |

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 100 |
|-----------------|---|-----|

| | | |
|-------------|---|---------|
| CRT mm min. | : | > 19.00 |
|-------------|---|---------|

Testing:

Rated speed rpm : 400
rack travel mm : 999.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 999
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.50
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 999.00
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 750
Pressure hPa : 1000

Rated speed rpm : 750
Pressure hPa : -
rack travel mm : 999.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 750

Pressure hPa : 650
rack travel mm : 999.00
Tolerance mm : \pm 0.20

Pressure hPa : 450
rack travel mm : 999.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 98.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 101.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 999.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 10.7
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

Note remarks

| | |
|------------------|----------------------|
| Edition | : 23.07.96 |
| Test oil | : ISO 4113 |
| Combination No. | : 0 402 996 306 |
| Injection pump | |
| Pump designation | : PES6P120A720RS8512 |
| | : -1 |
| EP type number | : 0 412 926 209 |
| Governor | |
| Governer design. | : RE30 |
| Governer no. | : 0 421 890 023 |

```
Customer-spec. information
Customer      : MACK
Motor        : E7
```

Inlet Line : 4.2

| | |
|----------------|---------|
| Test oil inlet | |
| temp. °C | : 40 |
| Tolerance °C | : ± 2.0 |

Overflow valve : 2 417 413 084

| | | |
|------------------|---|---------|
| Inlet press. bar | : | 3.0 |
| Tolerance bar | : | + - 0.1 |

Test nozzle holde
assembly : 1 688 901 103

Opening pressure : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : \pm 1.0

```
Prestroke mm      :      4.20
Tolerance mm      :  +-  0.05
Check
tolerance mm      :  +-  0.10
```

Rack travel in mm : 12.00
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

```
Phasing      : 0-60-120-180-240
              : -300
Tolerance    : +- 0.30
Check
tolerance °NW : +- 0.75
```

Start of delivery blocking

```
Tolerance      : +- 0.50
Check
tolerance °NW  : +- 0.75
```

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm³/1000 strokes : 392.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Speed
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.070
Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : +- 3.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : +- 19.0
Check tolerance
cm³/1000S. : +- 22.0
Speed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.03.97
Test oil : ISO 4113

Combination No. : 0 400 074 886

Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960

Governor
Governor design. : RSF400/2000M55-7
Governor no. : 0 420 021 268

Cust. part No. :

Customer-spec. information
Customer : DPICO
Motor : OM601-2.3l (Dom)
Power kW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 638 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 38.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 6.5
Tolerance
cm³/1000 strokes : \pm 0.5
Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : -
Del. quantity
cm³/1000 strokes : 38.5
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2250
rack travel mm : 7.70
Tolerance mm : \pm 0.25

Rated speed rpm : 2550
rack travel mm : 0.50
Tolerance mm : \pm 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

A22

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 3.50
Tolerance mm : \pm 0.10

Load pick-up

Rated speed rpm : 250
rack travel mm : 12.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.10
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 1800
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Rated speed rpm : 2000
rack travel mm : 11.80
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 40.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed

Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 2000
Spreed
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 2.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 2250
rack travel mm : 7.70
Tolerance mm : +- 0.25
Del. quantity
cm3/1000 strokes : 25.5
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : +- 1.50
Del. quantity
cm3/1000 strokes : 59.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 5.10
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

control lever
position degree : > 47.00

control lever
position degree : < 44.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 14.0
tolerance degree : +- 2.0

Rated speed rpm : 425
Rack travel in mm : 8.80
Tolerance mm : +- 0.80
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 strokes : +- 3.5
Check tolerance
cm3/1000S. : +- 4.5
Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 400
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.03.97
Test oil : ISO 4113

Combination No. : 0 400 075 923

Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978

Governor
Governor design. : RSF385/2000M55-8
Governor no. : 0 420 021 269

Cust. part No. :

Customer-spec. information
Customer : DPICO
Motor : OM602-2.9L (Dom)
Power KW : 69.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 38.5

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm3/1000S. : ± 1.5

Speed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 385

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : \pm 0.5
Speed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : -
Del. quantity
cm³/1000 strokes : 38.5
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2250
rack travel mm : 7.70
Tolerance mm : \pm 0.25

Rated speed rpm : 2550
rack travel mm : 0.50
Tolerance mm : \pm 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring
Rated speed rpm : 385
rack travel mm : 5.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 3.80
Tolerance mm : \pm 0.10

Load pick-up

Rated speed rpm : 250
rack travel mm : 12.20

Rated speed rpm : 1000
CRT mm max. : 1.45
rack travel mm : 5.60
Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 1800
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 2000
rack travel mm : 11.80
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : -
 Rated speed rpm : 1800
 Del. quantity
 cm³/1000 strokes : 40.8
 Tolerance
 cm³/1000 strokes : ± 0.8
 Check tolerance
 cm³/1000S. : ± 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : -
 Rated speed rpm : 2000
 Spreed
 Del. quantity
 cm³/1000 strokes : 41.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 2.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : -
 Rated speed rpm : 2250
 rack travel mm : 7.70
 Tolerance mm : ± 0.25
 Del. quantity
 cm³/1000 strokes : 25.5
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.60
 Tolerance mm : ± 1.50
 Del. quantity
 cm³/1000 strokes : 59.0

Tolerance
 cm³/1000 strokes : ± 4.0
 Check tolerance
 cm³/1000S. : ± 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 385
 Del. quantity
 cm³/1000 strokes : 10.3
 Check tolerance
 cm³/1000S. : ± 2.3
 Spreed
 Check tolerance
 cm³/1000S. : 1.5

control lever
 position degree : > 47.00

control lever
 position degree : < 44.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
 position degree : 14.0
 tolerance degree : ± 2.0

Rated speed rpm : 400

Rack travel in mm : 8.50
 Tolerance mm : ± 0.80
 Del. quantity
 cm³/1000 strokes : 22.0
 Tolerance
 cm³/1000 strokes : ± 3.5
 Check tolerance
 cm³/1000S. : ± 4.5
 Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 385
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113
Combination No. : 0 402 996 307
Injection pump
Pump designation : PES6P120A720RS8512
 : -2
EP type number : 0 412 926 212
Governor
Governor design. : RE30
Governor no. : 0 421 890 024
Cust. part No. : CCEP 5156 66-242

Customer-spec. information
Customer : RENAULT V.I.
Motor : 062465A42B42C42

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 084
Inlet press. bar : 3.0
Tolerance bar : + 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 4.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 12.00
Tolerance mm : + 0.20
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Start of delivery mark
°NW after s.o.d. : -0.15
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Barrel no. : 1
Beginning of delivery difference
betw. rack trav.
mm : 20.50

and maximum rack
travel : 12.00
Difference * CS : 3.10

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in

stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm³/1000 strokes : 392.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Speed
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.070
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 19.0
Check tolerance
cm³/1000S. : \pm 22.0
Spreed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 093 226
Injection pump
Pump designation : PES6A80D410RS2755
EP type number : 9 400 093 005
Governor
Governor design. : RSV325...1150A1C1168
: L
Governor no. : 9 420 083 293
Cust. part No. :

Customer-spec. information
Customer : DEUTZ-ARGENTINA
Motor : F6L913
Power KW : 96.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 1.95
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 9.35
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 54.5
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.0
Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 7.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.5

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 54.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 8.30
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1380

LOW IDLE

control lever
position degree : 81.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 6.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 530
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 9.35
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 10.35
Tolerance mm : \pm 0.15

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 57.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 6.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 093 227
Injection pump
Pump designation : PES6A85D410RS2756
EP type number : 9 400 093 006
Governor
Governor design. : RSV325...1150A1C1168
: L
Governor no. : 9 420 083 293
Cust. part No. :

Customer-spec. information
Customer : DEUTZ-ARGENTINA
Motor : BF6L913
Power kW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 32.0
Tolerance bar : ± 1.0
Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 11.35
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 8.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 73.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.30
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1380

LOW IDLE

control lever
position degree : 77.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.50
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 11.35
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.35
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed

Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 093 228
Injection pump
Pump designation : PES5A80D410RS2526
EP type number : 9 400 093 007
Governor
Governor design. : RSV325...1075A1C1167
: L
Governor no. : 9 420 083 292
Cust. part No. :

Customer-spec. information
Customer : DEUTZ-ARGENTINA
Motor : F5L913
Power KW : 87.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 9.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 53.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Spread

Tolerance
cm³/1000 strokes : 2.5

| | | |
|-------------------------------|---|-----|
| Check tolerance cm3/1000S. | : | 4.0 |
|-------------------------------|---|-----|

| | | |
|---|---|--------|
| Rated speed rpm | : | 325 |
| Rack travel in mm | : | 6.50 |
| Tolerance mm | : | ± 0.10 |
| Del. quantity cm3/1000 strokes | : | 7.5 |
| Tolerance cm3/1000 strokes | : | ± 1.5 |
| Check tolerance cm3/1000S. | : | ± 3.5 |
| Spread Tolerance cm3/1000 strokes | : | 4.0 |
| Check tolerance cm3/1000S. | : | 6.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|---|---|--------|
| control lever position degree | : | - 3 |
| Rated speed rpm | : | 800 |
| Rack travel in mm | : | 0.65 |
| Tolerance mm | : | ± 0.35 |
| governor spring pre-tension click setting x | : | 6.80 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|---|---|-------|
| Rated speed rpm | : | 1075 |
| Aneroid pressure hPa | : | - |
| Del. quantity cm3/1000 strokes | : | 53.0 |
| Tolerance cm3/1000 strokes | : | ± 0.5 |
| Check tolerance cm3/1000S. | : | ± 2.0 |
| Spread Tolerance cm3/1000 strokes | : | 2.5 |
| Check tolerance cm3/1000S. | : | 4.0 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 117.0 |
| tolerance degree | : | ± 4.0 |

| | | |
|-------------------------------|---|------|
| RATED SPEED rack travel mm | : | 8.40 |
| Rated speed rpm | : | 1120 |
| Tolerance 1/min | : | ± 5 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1165 |
| Tolerance 1/min | : | ± 15 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | ± 0.55 |
| Rated speed rpm | : | 1320 |

LOW IDLE

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 84.0 |
| tolerance degree | : | ± 4.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 325 |
| rack travel mm | : | 6.00 |
| Tolerance mm | : | ± 0.10 |

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 100 |
|-----------------|---|-----|

| | | |
|-------------|---|---------|
| CRT mm min. | : | > 19.00 |
|-------------|---|---------|

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 325 |
| rack travel mm | : | 6.50 |
| Tolerance mm | : | ± 0.10 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 540 |
| Tolerance 1/min | : | ± 30 |

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 1075 |
| rack travel mm | : | 9.45 |
| Tolerance mm | : | ± 0.05 |

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 500 |
| rack travel mm | : | 11.25 |
| Tolerance mm | : | ± 0.05 |

Rated speed rpm : 800
rack travel mm : 10.55
Tolerance mm : \pm 0.15

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 400 093 229
Injection pump
Pump designation : PES4A80D410RS2523
EP type number : 9 400 093 008
Governor
Governor design. : RSV325...1075A1C1167
: L
Governor no. : 9 420 083 292
Cust. part No. :

Customer-spec. information
Customer : DEUTZ-ARGENTINA
Motor : F4L913
Power KW : 56.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1075
Rack travel in mm : 10.25
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 60.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0
Spread
Tolerance
cm³/1000 strokes : 2.5

| | | |
|-------------------------------|---|-----|
| Check tolerance cm3/1000S. | : | 4.0 |
|-------------------------------|---|-----|

| | | |
|---|---|----------|
| Rated speed rpm | : | 325 |
| Rack travel in mm | : | 6.50 |
| Tolerance mm | : | + - 0.10 |
| Del. quantity cm3/1000 strokes | : | 7.5 |
| Tolerance cm3/1000 strokes | : | + - 1.5 |
| Check tolerance cm3/1000S. | : | + - 3.5 |
| Spread Tolerance cm3/1000 strokes | : | 4.0 |
| Check tolerance cm3/1000S. | : | 6.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|---|---|----------|
| control lever position degree | : | - 3 |
| Rated speed rpm | : | 800 |
| Rack travel in mm | : | 0.65 |
| Tolerance mm | : | + - 0.35 |
| governor spring pre-tension click setting x | : | 7.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|---|---|---------|
| Rated speed rpm | : | 1075 |
| Aneroid pressure hPa | : | - |
| Del. quantity cm3/1000 strokes | : | 60.5 |
| Tolerance cm3/1000 strokes | : | + - 0.5 |
| Check tolerance cm3/1000S. | : | + - 2.0 |
| Spread Tolerance cm3/1000 strokes | : | 2.5 |
| Check tolerance cm3/1000S. | : | 4.0 |

CONTROL LEVER

| | | |
|----------------------------------|---|---------|
| control lever position degree | : | 119.0 |
| tolerance degree | : | + - 4.0 |

RATED SPEED

| | | |
|-----------------|---|-------|
| rack travel mm | : | 9.20 |
| Rated speed rpm | : | 1120 |
| Tolerance 1/min | : | + - 5 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1175 |
| Tolerance 1/min | : | + - 15 |

| | | |
|-----------------|---|----------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | + - 0.55 |
| Rated speed rpm | : | 1320 |

LOW IDLE

| | | |
|----------------------------------|---|---------|
| control lever position degree | : | 85.0 |
| tolerance degree | : | + - 4.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 325 |
| rack travel mm | : | 6.00 |
| Tolerance mm | : | + - 0.10 |

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 100 |
|-----------------|---|-----|

| | | |
|-------------|---|---------|
| CRT mm min. | : | > 19.00 |
|-------------|---|---------|

Testing:

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 325 |
| rack travel mm | : | 6.50 |
| Tolerance mm | : | + - 0.10 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 550 |
| Tolerance 1/min | : | + - 30 |

TORQUE CONTROL

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 1075 |
| rack travel mm | : | 10.25 |
| Tolerance mm | : | + - 0.05 |

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 500 |
| rack travel mm | : | 11.05 |
| Tolerance mm | : | + - 0.05 |

Rated speed rpm : 750
rack travel mm : 10.65
Tolerance mm : \pm 0.15

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 6.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 407 083 263

Injection pump
Pump designation : PES6A90D32ORS2605
EP type number : 9 400 083 078

Governor
Governor design. : RSV325...900A1C2132R
Governor no. : 9 420 083 280

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TD 229-6
Power KW : 89.7

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 73.5

| | |
|------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : +- 0.5 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : +- 2.5 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance | |
| cm3/1000 strokes | : 3.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : 7.0 |
| <hr/> | |

| | |
|-------------------|-----------|
| Rated speed rpm | : 325 |
| <hr/> | |
| Rack travel in mm | : 7.00 |
| Tolerance mm | : +- 0.10 |
| Del. quantity | |
| cm3/1000 strokes | : 15.5 |
| Tolerance | |
| cm3/1000 strokes | : +- 2.0 |
| Check tolerance | |
| cm3/1000S. | : +- 4.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 4.5 |
| Check tolerance | |
| cm3/1000S. | : 7.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|-----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.65 |
| Tolerance mm | : +- 0.35 |
| <hr/> | |
| governor spring | |
| pre-tension | |
| click setting x | : 4.25 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|--------|
| Rated speed rpm | : 900 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm3/1000 strokes | : 73.5 |

| | |
|------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : +- 0.5 |
| Check tolerance | |
| cm3/1000S. | : +- 2.5 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 3.0 |
| Check tolerance | |
| cm3/1000S. | : 7.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 97.0 |
| tolerance degree | : +- 4.0 |

ASSEMBLY GOVERNOR SETTING

| | |
|-----------------|-----------|
| Rated speed rpm | : 923 |
| rack travel mm | : 9.20 |
| <hr/> | |
| Rated speed rpm | : 958 |
| Tolerance 1/min | : +- 4 |
| rack travel mm | : 4.00 |
| <hr/> | |
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1050 |

| | |
|-----------------|-----------|
| Rated speed rpm | : 924 |
| rack travel mm | : 9.20 |
| <hr/> | |
| Rated speed rpm | : 959 |
| Tolerance 1/min | : +- 4 |
| rack travel mm | : 4.00 |
| <hr/> | |
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1050 |

| | |
|-----------------|-----------|
| Rated speed rpm | : 925 |
| rack travel mm | : 9.20 |
| <hr/> | |
| Rated speed rpm | : 960 |
| Tolerance 1/min | : +- 4 |
| rack travel mm | : 4.00 |
| <hr/> | |
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1050 |

| | |
|-----------------|--------|
| Rated speed rpm | : 926 |
| rack travel mm | : 9.20 |

Rated speed rpm : 961
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1050

Rated speed rpm : 927
rack travel mm : 9.20

Rated speed rpm : 962
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1050

Rated speed rpm : 928
rack travel mm : 9.20

Rated speed rpm : 963
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1050

LOW IDLE

control lever
position degree : 74.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.50
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 7.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 10.25
Tolerance mm : +- 0.05

Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : +- 0.10

Rated speed rpm : 375
rack travel mm : 11.30
Tolerance mm : +- 0.30

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 7.00
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 15.5

Tolerance
cm3/1000 strokes : +- 2.0

Check tolerance
cm3/1000S. : +- 4.0

Speed
Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 270
Injection pump
Pump designation : PES6A90D410RS2293
EP type number : 0 410 896 031
Governor
Governor design. : RQV300...1400AB740
: -1L
Governor no. : 9 420 080 153
Cust. part No. :

Customer-spec. information

Customer : MBA
Motor : OM352-A
Power KW : 117.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 11.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 71.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Speed

| | |
|-------------------------------|-------|
| Tolerance | |
| cm ³ /1000 strokes | : 3.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. | : 7.0 |
| <hr/> | |

| | |
|-------------------------------|-----------|
| Rated speed rpm | : 300 |
| Rack travel in mm | : 7.50 |
| Tolerance mm | : +- 0.10 |
| Del. quantity | |
| cm ³ /1000 strokes | : 11.0 |
| Tolerance | |
| cm ³ /1000 strokes | : +- 2.0 |
| Check tolerance | |
| cm ³ /1000S. | : +- 4.0 |
| Spread | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.5 |
| Check tolerance | |
| cm ³ /1000S. | : 7.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-----------------|-----------|
| Rated speed rpm | : 775 |
| guide sleeve | |
| travel mm | : 4.35 |
| Tolerance mm | : +- 0.25 |

| | |
|-----------------|-----------|
| Rated speed rpm | : 1460 |
| guide sleeve | |
| travel mm | : 8.50 |
| Tolerance mm | : +- 0.10 |

| | |
|-----------------|-----------|
| Rated speed rpm | : 300 |
| guide sleeve | |
| travel mm | : 0.95 |
| Tolerance mm | : +- 0.25 |

| | |
|-----------------|-----------|
| Rated speed rpm | : 550 |
| guide sleeve | |
| travel mm | : 2.85 |
| Tolerance mm | : +- 0.15 |

| | |
|-----------------|-----------|
| Rated speed rpm | : 950 |
| guide sleeve | |
| travel mm | : 5.35 |
| Tolerance mm | : +- 0.15 |

GUIDE SLEEVE POSITION

| | |
|-----------------|--------|
| control lever | |
| position degree | : - 1 |
| Rated speed rpm | : 1420 |

| | |
|-------------------|-----------|
| Rack travel in mm | : 16.50 |
| Tolerance mm | : +- 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|----------|
| Rated speed rpm | : 1400 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm ³ /1000 strokes | : 71.5 |
| Tolerance | |
| cm ³ /1000 strokes | : +- 0.5 |
| Check tolerance | |
| cm ³ /1000S. | : +- 2.5 |
| Spread | |
| Tolerance | |
| cm ³ /1000 strokes | : 3.0 |
| Check tolerance | |
| cm ³ /1000S. | : 7.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 116.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 10.00 |
| Rated speed rpm | : 1445 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|---------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1570 |
| Tolerance 1/min | : +- 15 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.50 |
| Tolerance mm | : +- 0.50 |
| Rated speed rpm | : 1700 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 68.0 |
| tolerance degree | : +- 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

CRT mm min. : > 9.00

Testing:

Rated speed rpm : 300
rack travel mm : 7.50
Tolerance mm : \pm 0.10

Rated speed rpm : 435

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 11.05
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.10
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.90
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 279
Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...1400A2C2179
: R
Governor no. : 9 420 083 281
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D229-6
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 55.0

| | |
|------------------|---------|
| Tolerance | |
| cm3/1000 strokes | : + 0.5 |
| Check tolerance | |
| cm3/1000S. | : + 2.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 2.5 |
| Check tolerance | |
| cm3/1000S. | : 4.0 |

| | |
|-------------------|----------|
| Rated speed rpm | : 350 |
| Rack travel in mm | : 7.40 |
| Tolerance mm | : + 0.10 |
| Del. quantity | |
| cm3/1000 strokes | : 12.5 |
| Tolerance | |
| cm3/1000 strokes | : + 1.5 |
| Check tolerance | |
| cm3/1000S. | : + 3.5 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 4.0 |
| Check tolerance | |
| cm3/1000S. | : 6.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.65 |
| Tolerance mm | : + 0.35 |
| governor spring | |
| pre-tension | |
| click setting x | : 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|--------|
| Rated speed rpm | : 1400 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm3/1000 strokes | : 55.0 |

| | |
|------------------|---------|
| Tolerance | |
| cm3/1000 strokes | : + 0.5 |
| Check tolerance | |
| cm3/1000S. | : + 2.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 2.5 |
| Check tolerance | |
| cm3/1000S. | : 4.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 105.0 |
| tolerance degree | : + 4.0 |

| | |
|-----------------|--------|
| RATED SPEED | |
| rack travel mm | : 8.60 |
| Rated speed rpm | : 1445 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1490 |
| Tolerance 1/min | : + 15 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1650 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 72.0 |
| tolerance degree | : + 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 350 |
| rack travel mm | : 6.90 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 350 |
| rack travel mm | : 7.40 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|--------|
| rack travel mm | : 2.00 |
| Rated speed rpm | : 660 |
| Tolerance 1/min | : + 30 |

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.65
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 10.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0

Aneroid pressure

hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 7.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 281
Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...1150A2C2129
: -IR
Governor no. : 9 420 083 282
Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D 229-6
Power KW : 77.2

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 9.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 50.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 8.5

Tolerance

cm³/1000 strokes : ± 1.5

Check tolerance

cm³/1000S. : ± 3.5

Speed

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 50.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.50

Rated speed rpm : 1175

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 645
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 9.45
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.05
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 10.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure

hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 7.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 282
Injection pump
Pump designation : PES6A90D320RS2605
EP type number : 9 400 083 078
Governor
Governor design. : RSV325...1400A2C2096
: R
Governor no. : 9 420 083 168
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TD 229-6
Power KW : 95.6

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 922 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 65.5

| | | |
|-------------------------------|-----|------|
| Tolerance | | |
| cm ³ /1000 strokes | : ± | 0.5 |
| <hr/> | | |
| Check tolerance | | |
| cm ³ /1000S. | : ± | 2.5 |
| <hr/> | | |
| Speed | | |
| <hr/> | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 3.0 |
| <hr/> | | |
| Check tolerance | | |
| cm ³ /1000S. | : | 7.0 |
| <hr/> | | |
| | | |
| Rated speed rpm | : | 325 |
| | | |
| Rack travel in mm | : | 6.50 |
| Tolerance mm | : ± | 0.10 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 11.5 |
| Tolerance | | |
| cm ³ /1000 strokes | : ± | 2.0 |
| Check tolerance | | |
| cm ³ /1000S. | : ± | 4.0 |
| Speed | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 4.5 |
| Check tolerance | | |
| cm ³ /1000S. | : | 7.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| | |
| Rack travel in mm | : 0.65 |
| Tolerance mm | : ± 0.35 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|---------|
| Rated speed rpm | : 1400 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm ³ /1000 strokes | : 65.5 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 0.5 |
| Check tolerance | |
| cm ³ /1000S. | : ± 2.5 |

| | |
|-------------------------------|-------|
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 3.0 |
| Check tolerance | |
| cm ³ /1000S. | : 7.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 56.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|--------|
| rack travel mm | : 7.00 |
| Rated speed rpm | : 1445 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1480 |
| Tolerance 1/min | : ± 15 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1650 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 23.0 |
| tolerance degree | : ± 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 325 |
| rack travel mm | : 6.00 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 325 |
| rack travel mm | : 6.50 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|--------|
| rack travel mm | : 2.00 |
| Rated speed rpm | : 650 |
| Tolerance 1/min | : ± 30 |

TORQUE CONTROL

| | |
|-----------------|--------|
| Rated speed rpm | : 1400 |
|-----------------|--------|

rack travel mm : 8.05
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 8.95
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 8.55
Tolerance mm : \pm 0.15

Rated speed rpm : 1200
rack travel mm : 8.10
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 283
Injection pump
Pump designation : PES3A80D32ORS1281
EP type number : 9 400 083 054
Governor
Governor design. : RSV350...1150A2C2129
: -1R
Governor no. : 9 420 083 282
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-3
Power KW : 55.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 046
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 2- 3
Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Beginning of delivery differende
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 9.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : + 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : + 1.5

Check tolerance
cm³/1000S. : + 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 51.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 8.40

Rated speed rpm : 1195

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1250

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 680

Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 9.45

Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.85
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 10.15
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 53.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 7.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 407 083 284

Injection pump
Pump designation : PES4A80D320RS1282
EP type number : 9 400 083 056

Governor
Governor design. : RSV350...1150A2C2129
: -1R
Governor no. : 9 420 083 282

Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D 229-4
Power KW : 53.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 8.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 50.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : +- 2.0

Spreed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.50

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 8.5

Tolerance
cm³/1000 strokes : +- 1.5

Check tolerance
cm³/1000S. : +- 3.5

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : +- 0.35

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 2.0

Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 7.90
Rated speed rpm : 1175
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1225
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 73.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 625
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 8.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.65
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 9.95
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0

Aneroid pressure

hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 286
Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...1500A2B2028
: -1R
Governor no. : 9 420 083 175
Cust. part No. :

Customer spec. information
Customer : MWM
Motor : D 229-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference °CS : 4.50

BASIC SETTING

Rated speed rpm : 1480
Rack travel in mm : 9.25
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 50.0

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 9.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : \pm 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1480
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 2.0

Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 8.20
Rated speed rpm : 1525
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1575
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 20.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 630
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1480

rack travel mm : 9.25
 Tolerance mm : \pm 0.05

 Rated speed rpm : 500
 rack travel mm : 10.85
 Tolerance mm : \pm 0.05

 Rated speed rpm : 1300
 rack travel mm : 9.50
 Tolerance mm : \pm 0.10

 Rated speed rpm : 1000
 rack travel mm : 10.35
 Tolerance mm : \pm 0.15

Del. quantity
 cm³/1000 strokes : 9.0
 Tolerance
 cm³/1000 strokes : \pm 1.5
 Check tolerance
 cm³/1000S. : \pm 3.5
 Speed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 6.0

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 52.5
 Tolerance
 cm³/1000 strokes : \pm 1.5
 Check tolerance
 cm³/1000S. : \pm 3.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 56.5
 Tolerance
 cm³/1000 strokes : \pm 1.5
 Check tolerance
 cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.00
 Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350

 Rack travel in mm : 7.00
 Tolerance mm : \pm 0.10

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 287
Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...1000A1B628
: -1R
Governor no. : 9 420 083 176
Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D 229-6
Power KW : 70.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 922 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 9.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 43.0

| | |
|-------------------|-----------|
| Tolerance | |
| cm3/1000 strokes | : +- 0.5 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : +- 2.0 |
| <hr/> | |
| Spreed | |
| Tolerance | |
| cm3/1000 strokes | : 2.5 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : 4.0 |
| <hr/> | |
| Rated speed rpm | : 350 |
| Rack travel in mm | : 7.00 |
| Tolerance mm | : +- 0.10 |
| Del. quantity | |
| cm3/1000 strokes | : 9.0 |
| Tolerance | |
| cm3/1000 strokes | : +- 1.5 |
| Check tolerance | |
| cm3/1000S. | : +- 3.5 |
| Spreed | |
| Tolerance | |
| cm3/1000 strokes | : 4.0 |
| Check tolerance | |
| cm3/1000S. | : 6.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|-----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 300 |
| Rack travel in mm | : 0.65 |
| Tolerance mm | : +- 0.35 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|----------|
| Rated speed rpm | : 1025 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm3/1000 strokes | : 43.0 |
| Tolerance | |
| cm3/1000 strokes | : +- 0.5 |
| Check tolerance | |
| cm3/1000S. | : +- 2.0 |

| | |
|------------------|-------|
| Spreed | |
| Tolerance | |
| cm3/1000 strokes | : 2.5 |
| Check tolerance | |
| cm3/1000S. | : 4.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 56.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|--------|
| rack travel mm | : 8.00 |
| Rated speed rpm | : 1070 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|---------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1095 |
| Tolerance 1/min | : +- 15 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1250 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 24.0 |
| tolerance degree | : +- 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 350 |
| rack travel mm | : 6.50 |
| Tolerance mm | : +- 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

| | |
|-----------------|-----------|
| Rated speed rpm | : 350 |
| rack travel mm | : 7.00 |
| Tolerance mm | : +- 0.10 |

| | |
|-----------------|---------|
| rack travel mm | : 2.00 |
| Rated speed rpm | : 580 |
| Tolerance 1/min | : +- 30 |

TORQUE CONTROL

| | |
|-----------------|--------|
| Rated speed rpm | : 1025 |
|-----------------|--------|

| | | |
|-----------------|---|--------|
| rack travel mm | : | 9.05 |
| Tolerance mm | : | ± 0.05 |
| | | |
| Rated speed rpm | : | 500 |
| rack travel mm | : | 10.65 |
| Tolerance mm | : | ± 0.05 |
| | | |
| Rated speed rpm | : | 700 |
| rack travel mm | : | 10.20 |
| Tolerance mm | : | ± 0.10 |
| | | |
| Rated speed rpm | : | 900 |
| rack travel mm | : | 9.35 |
| Tolerance mm | : | ± 0.15 |

FUEL DELIVERY CHARACTERISTICS

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | - |
| Rated speed rpm | : | 500 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 48.5 |
| Tolerance | | |
| cm ³ /1000 strokes | : | ± 1.5 |
| Check tolerance | | |
| cm ³ /1000s. | : | ± 3.0 |
| Spreed | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 3.5 |
| Check tolerance | | |
| cm ³ /1000s. | : | 7.0 |

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | - |
| Rated speed rpm | : | 700 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 48.5 |
| Tolerance | | |
| cm ³ /1000 strokes | : | ± 1.5 |
| Check tolerance | | |
| cm ³ /1000s. | : | ± 3.0 |
| Spreed | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 3.5 |
| Check tolerance | | |
| cm ³ /1000s. | : | 7.0 |

STARTING FUEL DELIVERY

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 100 |
| rack travel mm | : | 20.00 |
| Tolerance mm | : | ± 1.00 |

LOW IDLE

| | | |
|-------------------------------|---|--------|
| Rated speed rpm | : | 350 |
| | | |
| Rack travel in mm | : | 7.00 |
| Tolerance mm | : | ± 0.10 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 9.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | ± 1.5 |
| Check tolerance | | |
| cm ³ /1000s. | : | ± 3.5 |
| Spreed | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 4.0 |
| Check tolerance | | |
| cm ³ /1000s. | : | 6.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 288
Injection pump
Pump designation : PES6A80D32ORS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...1100A2B664
: -1R
Governor no. : 9 420 083 177
Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D 229-6
Power KW : 66.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 922 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 47.0

Tolerance
cm3/1000 strokes : +- 0.5

Check tolerance
cm3/1000s. : +- 2.0

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000s. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 8.5

Tolerance
cm3/1000 strokes : +- 1.5
Check tolerance
cm3/1000s. : +- 3.5

Speed

Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000s. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : +- 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 47.0
Tolerance
cm3/1000 strokes : +- 0.5
Check tolerance
cm3/1000s. : +- 2.0

Speed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000s. : 4.0

CONTROL LEVER

control lever
position degree : 43.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 8.20
Rated speed rpm : 1145
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1185
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 17.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : +- 30

Rated speed rpm : 650

CRT mm max. : < 1.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 9.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 10.40
Tolerance mm : \pm 0.30

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 7.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 289
Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...1200A2B1108
: -1R
Governor no. : 9 420 083 173
Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D 229-6
Power KW : 84.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 922 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1200
Rack travel in mm : 9.75
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 53.0

Tolerance
cm3/1000 strokes : +- 0.5

Check tolerance
cm3/1000S. : +- 2.0

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 8.5

Tolerance
cm3/1000 strokes : +- 1.5

Check tolerance
cm3/1000S. : +- 3.5

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : +- 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 53.0

Tolerance
cm3/1000 strokes : +- 0.5

Check tolerance
cm3/1000S. : +- 2.0

Speed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 46.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 8.70
Rated speed rpm : 1245
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1305
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 18.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 660
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1200

| | | |
|-----------------|---|--------|
| rack travel mm | : | 9.75 |
| Tolerance mm | : | + 0.05 |
| | | |
| Rated speed rpm | : | 500 |
| rack travel mm | : | 11.25 |
| Tolerance mm | : | + 0.05 |
| | | |
| Rated speed rpm | : | 800 |
| rack travel mm | : | 10.90 |
| Tolerance mm | : | + 0.10 |
| | | |
| Rated speed rpm | : | 1000 |
| rack travel mm | : | 10.15 |
| Tolerance mm | : | + 0.15 |

FUEL DELIVERY CHARACTERISTICS

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | - |
| Rated speed rpm | : | 500 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 57.5 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 1.5 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 3.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 3.5 |
| Check tolerance | | |
| cm ³ /1000S. | : | 7.0 |

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | - |
| Rated speed rpm | : | 800 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 58.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 1.5 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 3.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 3.5 |
| Check tolerance | | |
| cm ³ /1000S. | : | 7.0 |

STARTING FUEL DELIVERY

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 100 |
| rack travel mm | : | 20.00 |
| Tolerance mm | : | + 1.00 |

LOW IDLE

| | | |
|-------------------------------|---|--------|
| Rated speed rpm | : | 350 |
| | | |
| Rack travel in mm | : | 7.00 |
| Tolerance mm | : | + 0.10 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 8.5 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 1.5 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 3.5 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 4.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 6.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113

Combination No. : 9 407 083 290

Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058

Governor
Governor design. : RSV350...1000A1C2029
: -1R
Governor no. : 9 420 083 285

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 49.5

| | |
|-------------------------------|-----------|
| Tolerance | |
| cm ³ /1000 strokes | : +- 0.5 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. | : +- 2.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes | : 2.5 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. | : 4.0 |
| <hr/> | |
| | |
| Rated speed rpm | : 350 |
| | |
| Rack travel in mm | : 7.00 |
| Tolerance mm | : +- 0.10 |
| Del. quantity | |
| cm ³ /1000 strokes | : 8.5 |
| Tolerance | |
| cm ³ /1000 strokes | : +- 1.5 |
| Check tolerance | |
| cm ³ /1000S. | : +- 3.5 |
| Spreed | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| Check tolerance | |
| cm ³ /1000S. | : 6.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|-----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| | |
| Rack travel in mm | : 0.65 |
| Tolerance mm | : +- 0.35 |
| | |
| governor spring | |
| pre-tension | |
| click setting x | : 5.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|--------|
| Rated speed rpm | : 1000 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm ³ /1000 strokes | : 49.5 |

| | |
|-------------------------------|----------|
| Tolerance | |
| cm ³ /1000 strokes | : +- 0.5 |
| Check tolerance | |
| cm ³ /1000S. | : +- 2.0 |
| Spreed | |
| Tolerance | |
| cm ³ /1000 strokes | : 2.5 |
| Check tolerance | |
| cm ³ /1000S. | : 4.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 58.0 |
| tolerance degree | : +- 4.0 |
| | |
| control lever | |
| position degree | : 108.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|-----------|
| rack travel mm | : 8.70 |
| Rated speed rpm | : 1045 |
| Tolerance 1/min | : +- 5 |
| | |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1085 |
| Tolerance 1/min | : +- 15 |
| | |
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1200 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 80.0 |
| tolerance degree | : +- 4.0 |
| | |
| control lever | |
| position degree | : 30.0 |
| tolerance degree | : +- 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 350 |
| rack travel mm | : 6.50 |
| Tolerance mm | : +- 0.10 |
| | |
| Rated speed rpm | : 100 |
| CRT mm min. | : > 19.00 |

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 555
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 9.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.75
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 54.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure

hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 7.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.02.97
Test oil : ISO 4113
Combination No. : 9 407 083 296
Injection pump
Pump designation : PES4A80D320RS1282
EP type number : 9 400 083 056
Governor
Governor design. : RSV350...1500A2C2122
: -2R
Governor no. : 9 420 083 286
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-4
Power KW : 64.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 2.25
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75
Beginning of delivery differende
and maximum rack
travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1500
Rack travel in mm : 9.65
Tolerance mm : +- 0.05
Del. quantity
cm3/1000 strokes : 62.0
Tolerance
cm3/1000 strokes : +- 0.5

Check tolerance
cm3/1000S. : +- 2.0

Spreed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 13.5
Tolerance
cm3/1000 strokes : +- 1.5

Check tolerance
cm3/1000S. : +- 3.5

Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : +- 0.35

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 62.0
Tolerance
cm3/1000 strokes : +- 0.5

Check tolerance
cm3/1000S. : +- 2.0

Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 8.60
Rated speed rpm : 1575
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1625
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1800

LOW IDLE

control lever
position degree : 74.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : +- 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 650
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1500
rack travel mm : 9.65
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1100
rack travel mm : 10.15
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 60.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 7.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.97
Test oil : ISO 4113

Combination No. : 0 401 876 337

Injection pump
Pump designation : PE6P130A320S521
EP type number : 0 411 836 044

Governor
Governor design. : RSV350...1500POA524
Governor no. : 0 421 833 256

Cust. part No. :

Customer-spec. information
Customer : ISOTTA
Motor : ID38 SS-6V

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 19.50
Tolerance mm : ± 1.50

Firing order : 1A- 2- 3A- 4- 5A-
: 6

Phasing : 0-45-120-165-240
: -285
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 240.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : + 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 6.90

Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + 3.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 240.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.50
Rated speed rpm : 1545
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1665
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1750

rack travel mm : 4.00
Rated speed rpm : 1680
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.40
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.90
Tolerance mm : + 0.20

rack travel mm : 2.00
Rated speed rpm : 555
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1500
rack travel mm : 12.55
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 12.60

Tolerance mm : \pm 3.10

Rated speed rpm : 400

rack travel mm : 14.00

Tolerance mm : \pm 0.30

Rated speed rpm : 500

rack travel mm : 6.50

Tolerance mm : \pm 0.01

Rated speed rpm : 500

rack travel mm : 7.80

Tolerance mm : \pm 0.01

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600

Pressure hPa : 900

rack travel mm : 12.55

Tolerance mm : \pm 0.05

Rated speed rpm : 600

Pressure hPa : -

rack travel mm : 11.55

Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 300

rack travel mm : 11.95

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies
(refer to cam sequence).

Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 0.1

Tolerance

cm³/1000 strokes : \pm 0.1

Delivery for shutoff assemblies
(refer to cam sequence).

Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 85.0

Tolerance

cm³/1000 strokes : \pm 5.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 198.5

Tolerance

cm³/1000 strokes : \pm 1.5

Check tolerance

cm³/1000s. : \pm 5.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.

Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 350

Rack travel in mm : 6.90

Tolerance mm : \pm 0.20

Del. quantity

cm³/1000 strokes : 23.0

Tolerance

cm³/1000 strokes : \pm 3.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113
Combination No. : 0 402 640 816
Injection pump
Pump designation : PE12P120A520LS7824
EP type number : 0 412 620 816

Governor
Governor design. : RQV250...1150PA902
: -3
Governor no. : 0 421 813 761

Cust. part No. : 2-7959

Customer-spec. information
Customer : MAN
Motor : D2842LXE
Power KW : 662.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 067
Outside diameter : 6.0

002

x inside diameter : 1.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 12-1A- 5- 9A- 8
: - 3A- 4-11A- 10
: - 2A- 6- 7A

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 250.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.80

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 56.0

Tolerance
cm³/1000 strokes : ± 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
guide sleeve

travel mm : 9.30

Tolerance mm : ± 0.10

Rated speed rpm : 250

guide sleeve

travel mm : 1.00

Tolerance mm : ± 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.20

Tolerance mm : ± 0.30

Rated speed rpm : 750

guide sleeve

travel mm : 5.70

Tolerance mm : ± 0.20

Rated speed rpm : 1400

guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1225

Rack travel in mm : 16.50

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure

hPa : 1300

Del. quantity

cm³/1000 strokes : 250.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 121.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1195

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1295

Tolerance 1/min : ± 20

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1400

LOW IDLE

control lever

position degree : 80.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 8.90

Testing:

Rated speed rpm : 250
rack travel mm : 7.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 7.40
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 8.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.50
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 400
rack travel mm : 12.10
Tolerance mm : \pm 0.20

Pressure hPa : 100
rack travel mm : 9.85
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 170

Check
speed 1/min : > 80
Check
speed 1/min : < 190

FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : \pm 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 19.30
Tolerance mm : ± 1.70
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : ± 10.0

LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 250
Rack travel in mm : 7.80
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : ± 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113
Combination No. : 0 402 640 833
Injection pump
Pump designation : PE12P120A520LS7829
: -1
EP type number : 0 412 620 827
Governor
Governor design. : RQV300...1150PA943
: -1
Governor no. : 0 421 813 869
Cust. part No. : 3-7156

Customer-spec. information

Customer : MAN
Motor : D2842LZE
Power KW : 809.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 12-1A- 5- 9A- 8
: - 3A- 4-11A- 10
: - 2A- 6- 7A
Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 14.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 338.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.40

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 56.0

Tolerance
cm³/1000 strokes : ± 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
guide sleeve
travel mm : 9.60
Tolerance mm : ± 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.40
Tolerance mm : ± 0.20

Rated speed rpm : 450
guide sleeve
travel mm : 3.20
Tolerance mm : ± 0.30

Rated speed rpm : 750
guide sleeve
travel mm : 5.90
Tolerance mm : ± 0.20

Rated speed rpm : 1400
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1260

Rack travel in mm : 13.90
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1300

Del. quantity
cm³/1000 strokes : 338.0
Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 124.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.90
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1315
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 86.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.90

Testing:

Rated speed rpm : 300
rack travel mm : 7.40
Tolerance mm : +- 0.10

Rated speed rpm : 345

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.95
Tolerance mm : +- 0.05

Rated speed rpm : 500
rack travel mm : 7.40
Tolerance mm : +- 0.10

Rated speed rpm : 500
rack travel mm : 8.60
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 14.95
Tolerance mm : +- 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 470
rack travel mm : 12.60
Tolerance mm : +- 0.20

Pressure hPa : 100
rack travel mm : 9.55
Tolerance mm : +- 0.05

Start interlock

D08

Rated speed rpm : > 100
Rated speed rpm : < 240

Check
speed 1/min : > 80
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : +- 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : +- 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000s. : +- 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 19.30
Tolerance mm : \pm 1.70
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 10.0

LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 300
Rack travel in mm : 7.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : \pm 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.97
Test oil : ISO 4113
Combination No. : 0 402 648 916
Injection pump
Pump designation : PE8P120A520LS7818-1
EP type number : 0 412 628 857
Governor
Governor design. : RQV250...1150PA902
Governor no. : 0 421 813 720

Cust. part No. : 3-7150

Customer-spec. information
Customer : MAN
Motor : D2848LXE 40
Power KW : 500.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holder assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 8-7A- 2- 6A- 3
 : - 5A- 4- 1A
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 14.25
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 319.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.40

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 56.0

Tolerance
cm³/1000 strokes : + 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
guide sleeve
travel mm : 9.50
Tolerance mm : + 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.50
Tolerance mm : + 0.10

Rated speed rpm : 850
guide sleeve
travel mm : 6.60
Tolerance mm : + 0.30

Rated speed rpm : 450
guide sleeve
travel mm : 3.70
Tolerance mm : + 0.30

Rated speed rpm : 1450
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1250

Rack travel in mm : 13.10
Tolerance mm : + 1.40

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1300
Del. quantity
cm³/1000 strokes : 319.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 13.20
Rated speed rpm : 1195
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1325
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 84.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.90

Testing:

Rated speed rpm : 250
rack travel mm : 7.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 6.90
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 8.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 14.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 470
rack travel mm : 12.45
Tolerance mm : \pm 0.15

Pressure hPa : 100
rack travel mm : 9.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 200

Check
speed 1/min : > 80

Check
speed 1/min : < 220

FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : \pm 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 14.0

LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 250

Rack travel in mm : 7.40

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 56.0

Tolerance

cm³/1000 strokes : \pm 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113

Combination No. : 0 402 648 977

Injection pump
Pump designation : PE8P120A520LS7818-2
EP type number : 0 412 628 887

Governor
Governor design. : RQV300...1150PA1039
: -2K
Governor no. : 0 421 815 316

Cust. part No. : 3-7224

Customer-spec. information
Customer : MAN
Motor : D2848LE401
Power KW : 500.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8-7A- 2- 6A- 3
: - 5A- 4- 1A

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 330.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.10

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 56.0

Tolerance
cm³/1000 strokes : +- 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206
guide sleeve
travel mm : 10.43
Tolerance mm : +- 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 2.24
Tolerance mm : +- 0.25

Rated speed rpm : 795
guide sleeve
travel mm : 6.88
Tolerance mm : +- 0.25

Rated speed rpm : 329
guide sleeve
travel mm : 2.75
Tolerance mm : +- 0.25

Rated speed rpm : 379
guide sleeve
travel mm : 3.53
Tolerance mm : +- 0.25

Rated speed rpm : 450

guide sleeve
travel mm : 4.21
Tolerance mm : +- 0.25

Rated speed rpm : 1450
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1280

Rack travel in mm : 13.40
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 330.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : +- 8

rack travel mm : 4.00
Rated speed rpm : 1325
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 8.20

Testing:

Rated speed rpm : 300
rack travel mm : 7.10
Tolerance mm : \pm 0.10

Rated speed rpm : 345

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.90
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 13.70
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 6.90
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 8.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 9.80

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 1000
rack travel mm : 12.40
Tolerance mm : \pm 0.15

Pressure hPa : 480
rack travel mm : 10.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 200
Rated speed rpm : $<$ 240

Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 274.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Delivery for shutoff assemblies

(refer to cam sequence).

Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : \pm 0.1

Delivery for shutoff assemblies

(refer to cam sequence).

Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 10.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.

Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 7.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : \pm 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113
Combination No. : 0 402 649 807
Injection pump
Pump designation : PE10P120A520LS7811
EP type number : 0 412 629 802
Governor
Governor design. : RQV250...1150PA902
Governor no. : 0 421 813 720

Cust. part No. : 2-7961

Customer-spec. information
Customer : MAN
Motor : D 2840 LX
Power KW : 603.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 067
Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 4.95
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 10-9A- 4- 1A- 8
: - 7A- 6- 3A- 5
: - 2A

Phasing : 0-45-72-117-144
: -189-216-261-288
: -333
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.10
Check
tolerance °NW : +- 0.75

Barrel no. : 10

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.75
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 297.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.40

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 56.0

Tolerance
cm³/1000 strokes : +- 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
guide sleeve
travel mm : 9.60
Tolerance mm : +- 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.30
Tolerance mm : +- 0.20

Rated speed rpm : 500
guide sleeve
travel mm : 4.00
Tolerance mm : +- 0.20

Rated speed rpm : 850
guide sleeve
travel mm : 6.70
Tolerance mm : +- 0.20

Rated speed rpm : 1400
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1200

Rack travel in mm : 16.50
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 297.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 12.70
Rated speed rpm : 1195
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1305
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 83.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 8.90

Testing:

Rated speed rpm : 250
rack travel mm : 7.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 7.40
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 9.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 13.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.30
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 470
rack travel mm : 12.40
Tolerance mm : \pm 0.20

Pressure hPa : 100
rack travel mm : 9.65
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 200

Check
speed 1/min : > 80
Check
speed 1/min : < 220

FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : \pm 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 19.30
Tolerance mm : \pm 1.70
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 10.0

LOW IDLE

Delivery for standard plunger/barrel assemblies.
Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 250
Rack travel in mm : 7.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : \pm 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113
Combination No. : 0 402 649 813
Injection pump
Pump designation : PE10P120A520LS7825
: -1
EP type number : 0 412 629 809
Governor
Governor design. : RGV250...1150PA902
: -3
Governor no. : 0 421 813 761
Cust. part No. : 3-7151

Customer-spec. information

Customer : MAN
Motor : D 2840 LXE
Power KW : 603.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 10-9A- 4- 1A- 8
: - 7A- 6- 3A- 5
: - 2A

Phasing : 0-45-72-117-144
: -189-216-261-288
: -333
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 10

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.35
Tolerance mm : ± 0.50

Del. quantity
cm³/1000 strokes : 295.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : \pm 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
guide sleeve
travel mm : 9.30
Tolerance mm : \pm 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.00
Tolerance mm : \pm 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 3.20
Tolerance mm : \pm 0.30

Rated speed rpm : 750
guide sleeve
travel mm : 5.70
Tolerance mm : \pm 0.20

Rated speed rpm : 1400
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1280

Rack travel in mm : 12.30
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1300
Del. quantity
cm³/1000 strokes : 295.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.30
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1300
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 8.90

Testing:

Rated speed rpm : 250
rack travel mm : 7.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.35
Tolerance mm : \pm 0.50

Rated speed rpm : 500
rack travel mm : 6.90
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 8.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.90
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 470
rack travel mm : 12.20
Tolerance mm : \pm 0.20

Pressure hPa : 100
rack travel mm : 9.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 200

Check
speed 1/min : > 80
Check
speed 1/min : < 220

FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : \pm 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 19.30
Tolerance mm : \pm 1.70
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 10.0

LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 250

Rack travel in mm : 7.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : \pm 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113

Combination No. : 0 402 899 301

Injection pump
Pump designation : PE10P120A520LS8523
EP type number : 0 412 829 202

Governor
Governor design. : RE30
Governor no. : 0 421 890 040

Cust. part No. : 51.11103-7531

Customer-spec. information

Customer : MAN
Motor : D 2840 LE 403
Power KW : 772.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1A- 8-7A- 6- 3A- 5
: - 2A- 10- 9A- 4

Phasing : 0-27-72-99-144-171
: -216-243-283-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 10

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.360
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.220
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : +/- 5.0
Check tolerance
cm³/1000s. : +/- 9.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 1.940
Del. quantity
cm³/1000 strokes : 0.1

Tolerance
cm³/1000 strokes : +- 0.1
Check tolerance
cm³/1000S. : +- 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 2.160
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 15.0

TEST POINT L1

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300
Uact V : 1.600
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.080
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.05.97
Test oil : ISO 4113
Combination No. : 9 400 083 449BC
Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1100A2C2209
: R
Governor no. : 9 420 083 2U1
Cust. part No. : 3353232-VERSA012

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT 8.3
Power KW : 154.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 10.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23
Barrel no. : 1
Beginning of delivery difference
and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 118.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 450

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 12.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 118.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 90.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.30
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1225
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 67.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450
rack travel mm : 5.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 600
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 12.85
Tolerance mm : \pm 0.25

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.05.97
Test oil : ISO 4113

Combination No. : 9 400 085 339

Injection pump
Pump designation : PES4A95D410RS2774
EP type number : 9 400 084 019

Governor
Governor design. : RQV300...1300AB1066
: -11L
Governor no. : 9 420 080 309

Cust. part No. : 0200742602

Customer-spec. information
Customer : MBB
Motor : OM 364 LA
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 103.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

| | | |
|-------------------------------|---|-----|
| Check tolerance cm3/1000S. | : | 8.0 |
|-------------------------------|---|-----|

| | | |
|---|---|--------|
| Rated speed rpm | : | 300 |
| Rack travel in mm | : | 7.00 |
| Tolerance mm | : | + 0.10 |
| Del. quantity cm3/1000 strokes | : | 9.5 |
| Tolerance cm3/1000 strokes | : | + 2.0 |
| Check tolerance cm3/1000S. | : | + 4.5 |
| Spread Tolerance cm3/1000 strokes | : | 5.5 |
| Check tolerance cm3/1000S. | : | 9.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 1000 |
| guide sleeve travel mm | : | 5.75 |
| Tolerance mm | : | + 0.25 |

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 1350 |
| guide sleeve travel mm | : | 8.20 |
| Tolerance mm | : | + 0.10 |

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 300 |
| guide sleeve travel mm | : | 1.05 |
| Tolerance mm | : | + 0.25 |

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 700 |
| guide sleeve travel mm | : | 4.25 |
| Tolerance mm | : | + 0.25 |

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 1450 |
| guide sleeve travel mm | : | 9.15 |
| Tolerance mm | : | + 0.25 |

GUIDE SLEEVE POSITION

| | | |
|----------------------------------|---|-----|
| control lever position degree | : | - 1 |
|----------------------------------|---|-----|

| | | |
|-------------------|---|--------|
| Rated speed rpm | : | 1395 |
| Rack travel in mm | : | 16.50 |
| Tolerance mm | : | + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|---|---|-------|
| Rated speed rpm | : | 1300 |
| Aneroid pressure hPa | : | 800 |
| Del. quantity cm3/1000 strokes | : | 103.0 |
| Tolerance cm3/1000 strokes | : | + 1.0 |
| Check tolerance cm3/1000S. | : | + 3.0 |
| Spread Tolerance cm3/1000 strokes | : | 3.5 |
| Check tolerance cm3/1000S. | : | 8.0 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 63.0 |
| tolerance degree | : | + 4.0 |

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 112.0 |
| tolerance degree | : | + 4.0 |

| | | |
|-------------------------------|---|-------|
| RATED SPEED rack travel mm | : | 10.50 |
| Rated speed rpm | : | 1360 |
| Tolerance 1/min | : | + 5 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1475 |
| Tolerance 1/min | : | + 15 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 0.50 |
| Tolerance mm | : | + 0.50 |
| Rated speed rpm | : | 1630 |

LOW IDLE

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 68.0 |
| tolerance degree | : | + 4.0 |

| | | |
|----------------------------------|---|------|
| control lever position degree | : | 20.0 |
|----------------------------------|---|------|

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

Testing:

Rated speed rpm : 300

rack travel mm : 7.00

Tolerance mm : \pm 0.10

Rated speed rpm : 525

TORQUE CONTROL

Rated speed rpm : 1300

rack travel mm : 11.55

Tolerance mm : \pm 0.05

Rated speed rpm : 700

rack travel mm : 11.85

Tolerance mm : \pm 0.05

Rated speed rpm : 1100

rack travel mm : 11.75

Tolerance mm : \pm 0.05

Rated speed rpm : 950

rack travel mm : 11.85

Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 800

rack travel mm : 11.85

Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 500

rack travel mm : 1.80

Tolerance mm : \pm 0.15

Pressure hPa : 380

rack travel mm : 0.75

Tolerance mm : \pm 0.10

E06

Start interlock

Rated speed rpm : $>$ 100

Rated speed rpm : $<$ 250

Check

speed 1/min : $>$ 80

Check

speed 1/min : $<$ 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 800

Rated speed rpm : 700

Del. quantity

cm³/1000 strokes : 97.5

Tolerance

cm³/1000 strokes : \pm 2.0

Check tolerance

cm³/1000S. : \pm 4.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 55.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 13.40

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 86.0

Tolerance

cm³/1000 strokes : \pm 7.5

Check tolerance

cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.00

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.97
Test oil : ISO 4113

Combination No. : 0 402 076 796

Injection pump
Pump designation : PES6P120A720RS3352
EP type number : 0 412 026 780

Governor
Governor design. : RSV400...1000P2A638
Governor no. : 0 421 833 547

Cust. part No. : RE66421

Customer-spec. information
Customer : DEERE
Motor : 6081HDW03
Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 7.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.00
Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 121.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.60
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 23.5

Tolerance
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 5.0

Spread

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 3.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure

hPa : -

Del. quantity
cm3/1000 strokes : 121.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.00
Rated speed rpm : 1055

Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1115

Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55

Rated speed rpm : 1250

rack travel mm : 4.00
Rated speed rpm : 1120

Tolerance 1/min : +- 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.10

Tolerance mm : +- 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400
rack travel mm : 5.60
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.60
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 139.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 0 402 736 907

Injection pump
Pump designation : PES6P120A720RS7351
EP type number : 0 412 726 922

Governor
Governor design. : RQV450...1100PA1334K
Governor no. : 0 421 815 549

Cust. part No. : 3931940

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.03
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.25
Tolerance mm : ± 0.05

| | |
|-------------------------------|----------|
| Del. quantity | |
| cm ³ /1000 strokes | : 227.0 |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes | : +- 1.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. | : +- 4.0 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes | : 5.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. | : 9.0 |
| <hr/> | |

| | |
|-------------------------------|-----------|
| Rated speed rpm | : 450 |
| <hr/> | |
| Rack travel in mm | : 6.40 |
| Tolerance mm | : +- 0.20 |
| Del. quantity | |
| cm ³ /1000 strokes | : 32.0 |
| Tolerance | |
| cm ³ /1000 strokes | : +- 3.0 |
| Check tolerance | |
| cm ³ /1000S. | : +- 5.0 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 8.0 |
| Check tolerance | |
| cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-----------------|-----------|
| Rated speed rpm | : 1162 |
| guide sleeve | |
| travel mm | : 7.49 |
| Tolerance mm | : +- 0.15 |
| <hr/> | |
| Rated speed rpm | : 450 |
| guide sleeve | |
| travel mm | : 1.33 |
| Tolerance mm | : +- 0.20 |
| <hr/> | |
| Rated speed rpm | : 860 |
| guide sleeve | |
| travel mm | : 4.55 |
| Tolerance mm | : +- 0.25 |
| <hr/> | |
| Rated speed rpm | : 1560 |

| | |
|--------------|-----------|
| guide sleeve | |
| travel mm | : 13.50 |
| Tolerance mm | : +- 0.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|----------|
| Rated speed rpm | : 1100 |
| Aneroid pressure | |
| hPa | : 1600 |
| Del. quantity | |
| cm ³ /1000 strokes | : 227.0 |
| Tolerance | |
| cm ³ /1000 strokes | : +- 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : +- 4.0 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 5.0 |
| Check tolerance | |
| cm ³ /1000S. | : 9.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 117.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|-----------|
| rack travel mm | : 13.20 |
| Rated speed rpm | : 1170 |
| Tolerance 1/min | : +- 15 |
| <hr/> | |
| rack travel mm | : 8.00 |
| Rated speed rpm | : 1250 |
| Tolerance 1/min | : +- 15 |
| <hr/> | |
| rack travel mm | : 0.50 |
| Tolerance mm | : +- 0.50 |
| Rated speed rpm | : 1350 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 79.0 |
| tolerance degree | : +- 4.0 |

| | |
|--------------------------|----------|
| Control lever difference | |
| Grad | : 38.0 |
| tolerance degree | : +- 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|-------|
| Rated speed rpm | : 375 |
|-----------------|-------|

CRT mm min. : > 7.70

Testing:

Rated speed rpm : 450
rack travel mm : 6.40
Tolerance mm : \pm 0.20

Rated speed rpm : 525

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.25
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.55
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 13.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 900

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 12.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 400
rack travel mm : 13.80
Tolerance mm : \pm 0.20

Pressure hPa : 300
rack travel mm : 13.40
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 390

Check
speed 1/min : > 80

Check
speed 1/min : < 400

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1600
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure

hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 183.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 156.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 6.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : +- 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113
Combination No. : 0 403 466 170
Injection pump
Pump designation : PES6MW100/120RS1242
EP type number : 0 413 406 241
Governor
Governor design. : RSV550...1100MW5A386
Governor no. : 0 420 085 271

Cust. part No. : 3929170

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference °CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 5.05
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

E16

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1170
Tolerance 1/min : \pm 5

rack travel mm : 8.00
Rated speed rpm : 1205
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1300

rack travel mm : 8.00
Rated speed rpm : 1205
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 24.0

tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 4.55
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 5.05
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 13.50
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 900
rack travel mm : 13.15
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 11.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 177.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 5.05
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113

Combination No. : 0 403 466 171

Injection pump
Pump designation : PES6MW100/120RS1242
EP type number : 0 413 406 241

Governor
Governor design. : RSV550...1100MW5A387
Governor no. : 0 420 085 272

Cust. part No. : 3930453

Customer-spec. information

Customer : CDC
Motor : 6 CTA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 7.5

Rated speed rpm : 550

Rack travel in mm : 5.05
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

E20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 7.5

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

rack travel mm : 8.00
Rated speed rpm : 1235
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1350

rack travel mm : 8.00
Rated speed rpm : 1235
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 25.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 4.55
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 5.05
Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.80
Tolerance mm : +- 0.05

Rated speed rpm : 750
rack travel mm : 13.50
Tolerance mm : +- 0.10

Rated speed rpm : 1000
rack travel mm : 13.50
Tolerance mm : +- 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.80
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 900
rack travel mm : 13.15
Tolerance mm : +- 0.20

Pressure hPa : 560
rack travel mm : 11.50
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 177.5
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 119.5
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 1.00
Del. quantity
cm3/1000 strokes : 140.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 13.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 5.05
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 4.5

Speed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113

Combination No. : 0 403 466 177

Injection pump
Pump designation : PES6MW100/120RS1242
EP type number : 0 413 406 241

Governor
Governor design. : RSV550...1100MW5A397
Governor no. : 0 420 085 286

Cust. part No. : 3931283

Customer-spec. information

Customer : CDC
Motor : 6 CTA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 5.05
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure

hPa : 1200
Del. quantity

cm³/1000 strokes : 158.0
Tolerance

cm³/1000 strokes : ± 1.0
Check tolerance

cm³/1000S. : ± 4.0
Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1180

Tolerance 1/min : ± 5

rack travel mm : 6.00
Rated speed rpm : 1235

Tolerance 1/min : ± 5

rack travel mm : 1.00
Tolerance mm : ± 0.70

Rated speed rpm : 1300

rack travel mm : 6.00
Rated speed rpm : 1235

Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 77.0
tolerance degree : ± 4.0

Control lever difference
Grad : 23.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 4.55
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 5.05
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 830
rack travel mm : 12.60
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 11.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 550

Rack travel in mm : 5.05
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.04.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 026

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1250A0C904R
Governor no. : F 002 A20 220

Cust. part No. : 3930148

Customer-spec. information
Customer : CDC
Motor : 4BT3.9
Power KW : 63.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 85.0

| | |
|------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : +- 3.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance | |
| cm3/1000 strokes | : 3.5 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : 6.0 |
| <hr/> | |

Rated speed rpm : 475

| | |
|-------------------|-----------|
| Rack travel in mm | : 5.50 |
| Tolerance mm | : +- 0.10 |
| Del. quantity | |
| cm3/1000 strokes | : 20.5 |
| Tolerance | |
| cm3/1000 strokes | : +- 2.0 |
| Check tolerance | |
| cm3/1000S. | : +- 4.5 |
| Spreed | |
| Tolerance | |
| cm3/1000 strokes | : 3.5 |
| Check tolerance | |
| cm3/1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|-----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : +- 0.20 |
| <hr/> | |
| governor spring | |
| pre-tension | |
| click setting x | : 4.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|--------|
| Rated speed rpm | : 1250 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm3/1000 strokes | : 85.0 |

| | |
|------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| Check tolerance | |
| cm3/1000S. | : +- 3.0 |
| Spreed | |
| Tolerance | |
| cm3/1000 strokes | : 3.5 |
| Check tolerance | |
| cm3/1000S. | : 6.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 112.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 9.30 |
| Rated speed rpm | : 1305 |
| Tolerance 1/min | : +- 10 |

| | |
|-----------------|--------|
| rack travel mm | : 6.30 |
| Rated speed rpm | : 1355 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1475 |

| | |
|-----------------|---------|
| rack travel mm | : 6.30 |
| Rated speed rpm | : 1355 |
| Tolerance 1/min | : +- 15 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 90.0 |
| tolerance degree | : +- 4.0 |

| | |
|--------------------------|----------|
| Control Lever difference | |
| Grad | : 22.0 |
| tolerance degree | : +- 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 475 |
| rack travel mm | : 5.00 |
| Tolerance mm | : +- 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.00
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.05.97
Test oil : ISO 4113

Combination No. : 0 401 430 015

Injection pump
Pump designation : PE12R120/520/6RS1510
EP type number : 0 411 420 002

Governor
Governor design. : RQV300...1150R7K
Governor no. : 0 421 415 007

Cust. part No. : 1 227 6584

Customer-spec. information
Customer : MWM
Motor : TBD 616

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 0.50

Firing order : 1- 2- 9-10- 5- 6
: - 11- 12- 3- 4
: - 7- 8

Phasing : 0-30-60-90-120-150
: -180-210-240-270
: -300-330
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 387.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 4.80

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1215

guide sleeve
travel mm : 9.95

Tolerance mm : ± 0.15

Rated speed rpm : 300

guide sleeve
travel mm : 0.93

Tolerance mm : ± 0.20

Rated speed rpm : 790

guide sleeve
travel mm : 4.81

Tolerance mm : ± 0.25

Rated speed rpm : 1430

guide sleeve
travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1330

Rack travel in mm : 9.00

Tolerance mm : ± 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure

hPa : 1500

Del. quantity

cm³/1000 strokes : 387.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

CONTROL LEVER

control lever

position degree : 121.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.40

Rated speed rpm : 1195

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1295

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1400

LOW IDLE

control lever

position degree : 71.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.30

Testing:

Rated speed rpm : 300

rack travel mm : 4.80

Tolerance mm : +- 0.10

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 14.40

Tolerance mm : +- 0.05

Rated speed rpm : 750

rack travel mm : 11.90

Tolerance mm : +- 0.20

Rated speed rpm : 400

rack travel mm : 10.30

Tolerance mm : +- 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150

Pressure hPa : 1500

rack travel mm : 14.40

Tolerance mm : +- 0.05

Rated speed rpm : 1150

Pressure hPa : -

rack travel mm : 7.90

Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 900

rack travel mm : 13.60

Tolerance mm : +- 0.20

Pressure hPa : 310

rack travel mm : 9.00

Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 250

Check
speed 1/min : > 80

Check
speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 750

Del. quantity
cm3/1000 strokes : 317.0

Tolerance
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Speed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm3/1000 strokes : 200.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Speed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.05.97

Test oil : ISO 4113

Combination No. : 0 402 076 795

Injection pump
Pump designation : PES6P120A720RS3369
EP type number : 0 412 026 789

Governor
Governor design. : RSV450...1075P5A631
Governor no. : 0 421 833 538

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8365.26.584
Power KW : 144.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 10.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 136.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 5.90

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 136.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.60

Rated speed rpm : 1150

Tolerance 1/min : ± 5

Check
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1195

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1235

Tolerance 1/min : ± 15

Check
speed 1/min : ± 20

LOW IDLE

control lever
position degree : 88.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 5.40

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 450

rack travel mm : 5.90

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 650

Tolerance 1/min : ± 50

TORQUE CONTROL

Rated speed rpm : 1075
rack travel mm : 10.75
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 10.80
Tolerance mm : +- 0.10

Rated speed rpm : 320
rack travel mm : 11.30
Tolerance mm : +- 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 10.75
Tolerance mm : +- 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.60
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 515
rack travel mm : 10.35
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 137.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 85.0
Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.60
Tolerance mm : +- 0.30
Del. quantity
cm3/1000 strokes : 95.0
Tolerance
cm3/1000 strokes : +- 15.0
Check tolerance
cm3/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.90
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 25.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.05.97
Test oil : ISO 4113

Combination No. : 0 402 076 797

Injection pump
Pump designation : PES6P120A72ORS3378
EP type number : 0 412 026 799

Governor
Governor design. : RSV450...1000P5A637
Governor no. : 0 421 833 548

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8365.26.541
Power KW : 129.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 240
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 125.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.20
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(E) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 125.0

Tolerance
cm³/1000 strokes : +- 1.0

F09

Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 8.00
Rated speed rpm : 1070

Tolerance 1/min : +- 5
Check

speed 1/min : +- 10

rack travel mm : 4.00
Rated speed rpm : 1115

Tolerance 1/min : +- 15
Check

speed 1/min : +- 20

rack travel mm : 0.85
Tolerance mm : +- 0.55

Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1125

Tolerance 1/min : +- 15
Check

speed 1/min : +- 20

LOW IDLE

control lever
position degree : 93.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 3.70
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 4.20

Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 560
Tolerance 1/min : +- 50

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 9.00
Tolerance mm : +- 0.05

Rated speed rpm : 500
rack travel mm : 9.05
Tolerance mm : +- 0.10

Rated speed rpm : 330
rack travel mm : 9.60
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 96.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 110.0
Tolerance
cm3/1000 strokes : +- 15.0
Check tolerance
cm3/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 4.20
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.05.97
Test oil : ISO 4113

Combination No. : 0 402 076 798

Injection pump
Pump designation : PES6P120A720RS3371
EP type number : 0 412 026 791

Governor
Governor design. : RSV450...1000P5A637
: -1
Governor no. : 0 421 833 549

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8365.26.540
Power KW : 136.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 230
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 128.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.60

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 128.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 8.50
Rated speed rpm : 1070
Tolerance 1/min : + 5
Check
speed 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1110
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1120
Tolerance 1/min : + 15
Check
speed 1/min : + 20

LOW IDLE

control lever
position degree : 88.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 4.60
Tolerance mm : + 0.10
rack travel mm : 2.00

Rated speed rpm : 580
Tolerance 1/min : +- 50

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 9.55
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 9.60
Tolerance mm : +- 0.10

Rated speed rpm : 320
rack travel mm : 10.20
Tolerance mm : +- 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 9.55
Tolerance mm : +- 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : +- 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 425
rack travel mm : 9.35
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.10
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 4.60
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.05.97
Test oil : ISO 4113

Combination No. : 0 402 076 807

Injection pump
Pump designation : PES6P120A720RS3378
EP type number : 0 412 026 799

Governor
Governor design. : RSV450...1050P5A647
Governor no. : 0 421 833 564

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8365.26.532
Power KW : 117.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 260
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 8.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 115.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.60
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 20.0

Tolerance
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Spreed
Tolerance

cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure

hPa : -
Del. quantity

cm3/1000 strokes : 115.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 113.0

RATED SPEED

rack travel mm : 7.40

Rated speed rpm : 1095

Tolerance 1/min : +- 5

Check
speed 1/min : +- 10

rack travel mm : 4.00

Rated speed rpm : 1125

Tolerance 1/min : +- 15

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1130

Tolerance 1/min : +- 15

Check
speed 1/min : +- 20

LOW IDLE

control lever
position degree : 91.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 4.10

Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 450

rack travel mm : 4.60

Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 570

Tolerance 1/min : +- 50

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 8.55
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 8.60
Tolerance mm : \pm 0.10

Rated speed rpm : 320
rack travel mm : 9.10
Tolerance mm : \pm 0.20

Rated speed rpm : 450
rack travel mm : 8.60
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 106.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.50
Tolerance mm : \pm 0.50

Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : \pm 15.0

Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.05.97
Test oil : ISO 4113

Combination No. : 0 402 076 808

Injection pump
Pump designation : PES6P120A720RS3371
EP type number : 0 412 026 791

Governor
Governor design. : RSV450...1050P5A649
Governor no. : 0 421 833 566

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8365.26.534
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 260
Tolerance l/h : +- 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.55
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.25
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 126.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 126.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 115.0

RATED SPEED
rack travel mm : 8.20
Rated speed rpm : 1075
Tolerance 1/min : + 5
Check
speed 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1110
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1120
Tolerance 1/min : + 15
Check
speed 1/min : + 20

LOW IDLE

control lever
position degree : 94.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.00
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 4.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 9.25
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 9.30
Tolerance mm : ± 0.10

Rated speed rpm : 320
rack travel mm : 9.80
Tolerance mm : ± 0.20

Rated speed rpm : 450
rack travel mm : 9.30
Tolerance mm : ± 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 9.30
Tolerance mm : ± 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.50
Tolerance mm : ± 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 425
rack travel mm : 8.90
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.50
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 4.50
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.97
Test oil : ISO 4113
Combination No. : 0 402 610 804
Injection pump
Pump designation : PE12P120A500/5RS7376
EP type number : 0 412 620 843

Governor
Governor design. :
Governor no. :

Cust. part No. : 1 2277 436

Customer-spec. information
Customer : MWM
Motor : TBD 616-V12
Power KW : 648.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 2- 9-10- 5- 6
: - 11- 12- 3- 4
: - 7- 8

Phasing : 0-30-60-90-120-150
: -180-210-240-270
: -300-330
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750

rack travel mm : 12.35

Tolerance mm : +- 0.05

LOW IDLE

Rated speed rpm : 325

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.97
Test oil : ISO 4113

Combination No. : 0 402 618 801

Injection pump
Pump designation : PE8P120A500/5RS7144
EP type number : 0 412 628 821

Governor
Governor design. :
Governor no. :

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TBD234V16

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1-2A- 3- 4A- 7
: - 8A- 5- 6A

Phasing : 0-30-90-120-135
: -165-225-255
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 261.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 14.95
Tolerance mm : +- 0.05

Rated speed rpm : 1150
rack travel mm : 14.95
Tolerance mm : +- 0.10

Rated speed rpm : 1100

rack travel mm : 5.00
Tolerance mm : +- 0.10

Rated speed rpm : 1100
rack travel mm : 7.00
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 260.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 0.1
Tolerance
cm3/1000 strokes : +- 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 strokes : +- 25.0
Check tolerance
cm3/1000S. : +- 25.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.

Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.97
Test oil : ISO 4113

Combination No. : 0 402 646 608

Injection pump
Pump designation : PE6P120A720RS7188
: -10J
EP type number : 0 412 626 926

Governor
Governor design. : RQ200/950PA745-3
Governor no. : 0 421 801 579

Cust. part No. : 1344920

Customer-spec. information
Customer : SCANIA
Motor : DSC 11 71

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 235
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1006
guide sleeve
travel mm : 4.90
Tolerance mm : \pm 0.15

Rated speed rpm : 250
guide sleeve
travel mm : 1.41
Tolerance mm : \pm 0.20

Rated speed rpm : 930
guide sleeve
travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 355
guide sleeve
travel mm : 2.97
Tolerance mm : \pm 0.10

Rated speed rpm : 520
guide sleeve
travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1045
guide sleeve
travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1360
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 104
Rated speed rpm : 600

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

CONTROL LEVER

control lever
position degree : 42.0
tolerance degree : \pm 4.0

control lever
position degree : 96.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.70
Rated speed rpm : 1050
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1135
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 62.0
tolerance degree : \pm 4.0

control lever
position degree : 8.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 250

rack travel mm : 4.70

Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 340

Tolerance 1/min : +- 20

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 10.75

Tolerance mm : +- 0.05

Rated speed rpm : 950

rack travel mm : 10.75

Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : +- 4.0

Check tolerance
cm³/1000S. : +- 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 10.75

Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 170.0

Tolerance
cm³/1000 strokes : +- 20.0

Check tolerance
cm³/1000S. : +- 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.70

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.97
Test oil : ISO 4113

Combination No. : 0 402 676 804

Injection pump
Pump designation : PE6P120A32ORS7142
EP type number : 0 412 626 820

Governor
Governor design. : RSLV325...1150POA358
Governor no. : 0 421 829 105

Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D-TBD 234 V6

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Freestroke n.m : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1-6A- 3- 2A- 5
: - 4A

Phasing : 0-90-120-210-240
: -330
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.60

Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 35.0

Tolerance
cm3/1000 strokes : +- 5.0

Check tolerance
cm3/1000S. : +- 8.0

Spreed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : 900
Del. quantity
cm3/1000 strokes : 261.0
Tolerance
cm3/1000 strokes : +- 1.0

G01

Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : +- 4.0

control lever
position degree : 110.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.90
Rated speed rpm : 1195
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1295
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1440

LOW IDLE

control lever
position degree : 73.0
tolerance degree : +- 4.0

control lever
position degree : 23.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.10
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 6.60
Tolerance mm : +- 0.10
rack travel mm : 2.00

Rated speed rpm : 470
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 14.95
Tolerance mm : +- 0.05

Rated speed rpm : 1150
rack travel mm : 14.95
Tolerance mm : +- 0.10

Rated speed rpm : 1100
rack travel mm : 5.00
Tolerance mm : +- 0.10

Rated speed rpm : 1100
rack travel mm : 7.00
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.50
Tolerance mm : +- 0.10

MEASUREMENT

Pressure hPa : 725
rack travel mm : 14.75
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : +- 0.1
Check tolerance
cm³/1000S. : +- 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : +- 25.0
Check tolerance
cm³/1000S. : +- 25.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : +- 20.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 325
Rack travel in mm : 6.60

Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000s. : \pm 8.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.05.97
Test oil : ISO 4113

Combination No. : 0 402 676 809

Injection pump
Pump designation : PE6P120A720RS7126
: -10
EP type number : 0 412 626 929

Governor
Governor design. : RSV350...1050P1A543
: -1
Governor no. : 0 421 833 325

Cust. part No. : 1305082

Customer-spec. information
Customer : SCANIA
Motor : DS11 54,57

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

G04

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.15
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 235.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 235.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : \pm 4.0

control lever
position degree : 112.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.10

Rated speed rpm : 1095

Tolerance 1/min : \pm 5

Check
speed 1/min : \pm 0

rack travel mm : 4.00

Rated speed rpm : 1180

Tolerance 1/min : \pm 15

Check
speed 1/min : \pm 20

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

control lever
position degree : 28.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 3.90
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 350
rack travel mm : 4.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 14.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 14.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 510
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Pressure hPa : 250
rack travel mm : 11.60
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 227.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 300.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.97
Test oil : ISO 4113

Combination No. : 0 402 678 805

Injection pump
Pump designation : PE8P120A520/5RS7143
EP type number : 0 412 628 820

Governor
Governor design. : RSUV325...1150POA358
Governor no. : 0 421 829 105

Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : TBD234V8

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

G08

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Freestroke mm : 5.25
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1-8A- 5- 4A- 7
: - 2A- 3- 6A

Phasing : 0-30-90-120-180
: -210-270-300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.60

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 35.0

Tolerance
cm³/1000 strokes : +- 5.0

Check tolerance
cm³/1000S. : +- 8.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 261.0
Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : +- 4.0

control lever
position degree : 110.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.90
Rated speed rpm : 1195
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1295
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1440

LOW IDLE

control lever
position degree : 73.0
tolerance degree : +- 4.0

control lever
position degree : 23.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.10
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 6.60
Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 470
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 14.95
Tolerance mm : +- 0.05

Rated speed rpm : 1150
rack travel mm : 14.95
Tolerance mm : +- 0.10

Rated speed rpm : 1100
rack travel mm : 5.00
Tolerance mm : +- 0.10

Rated speed rpm : 1100
rack travel mm : 7.00
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.50
Tolerance mm : +- 0.10

MEASUREMENT

Pressure hPa : 725
rack travel mm : 14.75
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 260.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 0.1
Tolerance
cm3/1000 strokes : +- 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 strokes : +- 25.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 130.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 220.0
Tolerance
cm3/1000 strokes : +- 20.0
Check tolerance
cm3/1000S. : +- 24.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 325
Rack travel in mm : 6.60
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000s. : \pm 8.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.97
Test oil : ISO 4113
Combination No. : 0 402 678 806
Injection pump
Pump designation : PE8P120A520/5RS7145
EP type number : 0 412 628 822
Governor
Governor design. : RSUV325...1150PUA350
: -1
Governor no. : 0 421 829 106
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TBD234V16

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.25
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1-2A- 3- 4A- 7
: - 8A- 5- 6A
Phasing : 0-30-90-120-225
: -255-315-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800
Rack travel in mm : 14.95
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 261.0

| | | |
|-------------------|-----------|--|
| Tolerance | | |
| cm3/1000 strokes | : +- 1.0 | |
| <hr/> | | |
| Check tolerance | | |
| cm3/1000S. | : +- 4.0 | |
| <hr/> | | |
| Spreed | | |
| <hr/> | | |
| Tolerance | | |
| cm3/1000 strokes | : 5.0 | |
| <hr/> | | |
| Check tolerance | | |
| cm3/1000S. | : 9.0 | |
| <hr/> | | |
| | | |
| Rated speed rpm | : 325 | |
| | | |
| Rack travel in mm | : 6.60 | |
| Tolerance mm | : +- 0.10 | |
| Del. quantity | | |
| cm3/1000 strokes | : 35.0 | |
| Tolerance | | |
| cm3/1000 strokes | : +- 5.0 | |
| Check tolerance | | |
| cm3/1000S. | : +- 8.0 | |
| Spreed | | |
| Tolerance | | |
| cm3/1000 strokes | : 6.0 | |
| Check tolerance | | |
| cm3/1000S. | : 10.0 | |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|-----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : +- 0.20 |
| | |
| governor spring | |
| pre-tension | |
| click setting x | : 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|---------|
| Rated speed rpm | : 800 |
| Aneroid pressure | |
| hPa | : 900 |
| Del. quantity | |
| cm3/1000 strokes | : 261.0 |

| | |
|------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| Check tolerance | |
| cm3/1000S. | : +- 4.0 |
| Spreed | |
| Tolerance | |
| cm3/1000 strokes | : 5.0 |
| Check tolerance | |
| cm3/1000S. | : 9.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 50.0 |
| tolerance degree | : +- 4.0 |

| | |
|------------------|----------|
| control lever | |
| position degree | : 110.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 13.90 |
| Rated speed rpm | : 1195 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|---------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1295 |
| Tolerance 1/min | : +- 15 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1440 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 73.0 |
| tolerance degree | : +- 4.0 |

| | |
|------------------|----------|
| control lever | |
| position degree | : 23.0 |
| tolerance degree | : +- 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 325 |
| rack travel mm | : 6.10 |
| Tolerance mm | : +- 0.10 |

Testing:

| | |
|-----------------|-----------|
| Rated speed rpm | : 325 |
| rack travel mm | : 6.60 |
| Tolerance mm | : +- 0.10 |

rack travel mm : 2.00
Rated speed rpm : 470
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 14.95
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
rack travel mm : 14.95
Tolerance mm : \pm 0.10

Rated speed rpm : 1100
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1100
rack travel mm : 7.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.50
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : 725
rack travel mm : 14.75
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger

barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : \pm 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 0.1
Tolerance
cm³/1000 strokes : \pm 0.1

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 325
Rack travel in mm : 6.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0
Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.96
Test oil : ISO 4113

Combination No. : 0 402 746 985

Injection pump
Pump designation : PES6P120A720RS7224
: -2
EP type number : 0 412 726 893

Governor
Governor design. : RQ275/1050PA1021-2
Governor no. : 0 421 801 676

Cust. part No. :

Customer-spec. information
Customer : IVECO-UNIC
Motor : 8460.41.721

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.85
Tolerance mm : ± 0.05

Rated speed rpm : 275
 Rack travel in mm : 5.10
 Tolerance mm : +- 0.10
 Del. quantity
 cm3/1000 strokes : 23.0
 Tolerance
 cm3/1000 strokes : +- 3.0
 Check tolerance
 cm3/1000S. : +- 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : 109
 Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : +- 0.80

RATED SPEED
 rack travel mm : 9.80
 Rated speed rpm : 1103
 Tolerance 1/min : +- 8

rack travel mm : 4.00
 Rated speed rpm : 1160
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1350

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 100
 CRT mm min. : > 6.60

Testing:

Rated speed rpm : 275
 rack travel mm : 5.10
 Tolerance mm : +- 0.10

rack travel mm : 2.00
 Rated speed rpm : 355
 Tolerance 1/min : +- 20

TORQUE CONTROL

Rated speed rpm : 1050
 rack travel mm : 10.85
 Tolerance mm : +- 0.05

Rated speed rpm : 550
 rack travel mm : 10.85
 Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 900
 rack travel mm : 10.85
 Tolerance mm : +- 0.05

Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 7.60
 Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 500
 Pressure hPa : 250
 rack travel mm : 8.35
 Tolerance mm : +- 0.10

Pressure hPa : 430
 rack travel mm : 9.95
 Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 215

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 235

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 221.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.05.97
Test oil : ISO 4113
Combination No. : 0 403 466 180
Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237
Governor
Governor design. : RSV425...1150MW2A407
Governor no. : 0 420 085 298

Cust. part No. : 3284067

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 129.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 093
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 8.25
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 9.95
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 119.0

| | |
|-------------------|-----------|
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : +- 4.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance | |
| cm3/1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : 7.5 |
| <hr/> | |
| | |
| Rated speed rpm | : 440 |
| | |
| Rack travel in mm | : 5.20 |
| Tolerance mm | : +- 0.10 |
| Del. quantity | |
| cm3/1000 strokes | : 24.5 |
| Tolerance | |
| cm3/1000 strokes | : +- 2.0 |
| Check tolerance | |
| cm3/1000S. | : +- 4.5 |
| Spreed | |
| Tolerance | |
| cm3/1000 strokes | : 3.5 |
| Check tolerance | |
| cm3/1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|-----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| | |
| Rack travel in mm | : 0.65 |
| Tolerance mm | : +- 0.35 |
| | |
| governor spring | |
| pre-tension | |
| click setting x | : 3.75 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|---------|
| Rated speed rpm | : 1150 |
| Aneroid pressure | |
| hPa | : 900 |
| Del. quantity | |
| cm3/1000 strokes | : 119.0 |

| | |
|------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| Check tolerance | |
| cm3/1000S. | : +- 4.0 |
| Spreed | |
| Tolerance | |
| cm3/1000 strokes | : 4.0 |
| Check tolerance | |
| cm3/1000S. | : 7.5 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 102.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|--------|
| rack travel mm | : 8.90 |
| Rated speed rpm | : 1200 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1275 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|-----------|
| rack travel mm | : 1.00 |
| Tolerance mm | : +- 0.70 |
| Rated speed rpm | : 1400 |

| | |
|-----------------|---------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1275 |
| Tolerance 1/min | : +- 15 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 81.0 |
| tolerance degree | : +- 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 440 |
| rack travel mm | : 4.70 |
| Tolerance mm | : +- 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

| | |
|-----------------|-----------|
| Rated speed rpm | : 440 |
| rack travel mm | : 5.20 |
| Tolerance mm | : +- 0.10 |

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 9.95
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 10.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.05
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 10.20
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 115.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 440

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113
Combination No. : 0 402 746 622
Injection pump
Pump designation : PES6P120A720RS7424
EP type number : 0 412 726 964

Governor
Governor design. : RQV325...900PA944
: -25K
Governor no. : 0 421 815 536

Cust. part No. : 3136C5223-P16

Customer-spec. information
Customer : MACK
Motor : E7-350
Power KW : 261.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 413 359 008
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.00
Tolerance mm : ± 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 319.5

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 340

Rack travel in mm : 4.80
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 31.5

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 319.5

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : +- 6.0

RATED SPEED

rack travel mm : 13.10
Rated speed rpm : 945
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1115
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 64.0
tolerance degree : +- 6.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 6.10

Testing:

Rated speed rpm : 340
rack travel mm : 4.80
Tolerance mm : +- 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.15
Tolerance mm : +- 0.05

Rated speed rpm : 625
rack travel mm : 13.60
Tolerance mm : +- 0.10

Rated speed rpm : 500
rack travel mm : 12.80
Tolerance mm : +- 0.40

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 8.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900
Pressure hPa : 810
rack travel mm : 13.20
Tolerance mm : \pm 0.20

Pressure hPa : 420
rack travel mm : 10.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 250

Check
speed 1/min : > 80
Check
speed 1/min : < 255

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 625
Del. quantity
cm³/1000 strokes : 339.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 30.0

LOW IDLE

Rated speed rpm : 340
Rack travel in mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 31.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.05.97
Test oil : ISO 4113

Combination No. : 9 400 030 746

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1250AOC862R
Governor no. : 9 420 034 720

Cust. part No. : 3930150

Customer-spec. information

Customer : CDC
Motor : 4BT3.9
Power kW : 67.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 95.0

| | |
|------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : +- 3.0 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance | |
| cm3/1000 strokes | : 3.5 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : 6.0 |
| <hr/> | |

| | |
|-------------------|-----------|
| Rated speed rpm | : 475 |
| <hr/> | |
| Rack travel in mm | : 5.50 |
| Tolerance mm | : +- 0.10 |
| Del. quantity | |
| cm3/1000 strokes | : 20.5 |
| Tolerance | |
| cm3/1000 strokes | : +- 2.0 |
| Check tolerance | |
| cm3/1000S. | : +- 4.5 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 3.5 |
| Check tolerance | |
| cm3/1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|-----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : +- 0.20 |
| <hr/> | |
| governor spring | |
| pre-tension | |
| click setting x | : 4.75 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|--------|
| Rated speed rpm | : 1250 |
| Aneroid pressure | |
| hPa | : 900 |
| Del. quantity | |
| cm3/1000 strokes | : 95.0 |

| | |
|------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| Check tolerance | |
| cm3/1000S. | : +- 3.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 3.5 |
| Check tolerance | |
| cm3/1000S. | : 6.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 106.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 10.20 |
| Rated speed rpm | : 1315 |
| Tolerance 1/min | : +- 10 |

| | |
|-----------------|--------|
| rack travel mm | : 4.70 |
| Rated speed rpm | : 1380 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1500 |

| | |
|-----------------|---------|
| rack travel mm | : 4.70 |
| Rated speed rpm | : 1380 |
| Tolerance 1/min | : +- 15 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 77.0 |
| tolerance degree | : +- 4.0 |

Control lever difference

| | |
|------------------|----------|
| Grad | : 29.0 |
| tolerance degree | : +- 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 475 |
| rack travel mm | : 5.00 |
| Tolerance mm | : +- 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 10.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 590
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 490
rack travel mm : 11.05
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 122.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.05.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 057

Injection pump
Pump designation : PES4A95D320/3RS2927
EP type number : F 002 A10 017

Governor
Governor design. : RSV475...1250AOC936R
Governor no. : F 002 A20 241

Cust. part No. : 3930145

Customer-spec. information

Customer : CDC
Motor : 4BNA3.9
Power kW : 59.7

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 9.90
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 87.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 4.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 87.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 90.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.90
Rated speed rpm : 1315
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1375

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1450

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 4.0

Control lever difference

Grad : 20.0
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.10
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 4.60
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 9.90
Tolerance mm : \pm 0.05

Rated speed rpm : 600

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

H02

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113

Combination No. : 0 402 796 816

Injection pump
Pump designation : PES6P12DA720/3LS7396
EP type number : 0 412 726 948

Governor
Governor design. : RE30
Governor no. : 0 421 890 035

Cust. part No. : 51.11103-7485

Customer-spec. information
Customer : MAN
Motor : D 2866 LF 10
Power KW : 309.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.100
Del. quantity
cm3/1000 strokes : 285.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.120
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.470
Del. quantity
cm3/1000 strokes : 73.0
Tolerance
cm3/1000 strokes : +/- 5.0
Check tolerance
cm3/1000S. : +/- 9.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 9.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113
Combination No. : 0 402 796 825
Injection pump
Pump designation : PES6P120A720/3LS7435
EP type number : 0 412 726 969
Governor
Governor design. : RE30
Governor no. : 0 421 890 042

Cust. part No. : 51.11103-7503

Customer-spec. information
Customer : MAN
Motor : D 2866 LUE 602
Power kW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

H06

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 13.00
Tolerance mm : ± 0.50
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.100
Del. quantity
cm3/1000 strokes : 285.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.120
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.470
Del. quantity
cm3/1000 strokes : 73.0
Tolerance
cm3/1000 strokes : +/- 5.0
Check tolerance
cm3/1000S. : +/- 9.0
Speed
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 500

Uact V : 1.950
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 9.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.080
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.05.97
Test oil : ISO 4113
Combination No. : 0 400 846 591
Injection pump
Pump designation : PES6A95D410RS2797
EP type number : 0 410 896 900
Governor
Governor design. : PQV300...1400A91065
:-22L
Governor no. : 0 420 212 226
Cust. part No. : 020 074 4902

Customer-spec. information

Customer : MB-NFZ
Motor : OM 366
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

H09

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 10.15
Tolerance mm : ± 0.05
Rack travel in mm : 9.00
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : \pm 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : \pm 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

CONTROL LEVER

control lever
position degree : 110.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.10
Rated speed rpm : 1455
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1555
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1670

LOW IDLE

H10

control lever
position degree : 63.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.80

Testing:

Rated speed rpm : 300
rack travel mm : 9.00
Tolerance mm : \pm 0.10

Rated speed rpm : 575

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.15
Tolerance mm : \pm 0.05

Rated speed rpm : 400
rack travel mm : 11.60
Tolerance mm : \pm 0.10

Rated speed rpm : 630
rack travel mm : 11.25
Tolerance mm : \pm 0.15

Rated speed rpm : 925
rack travel mm : 10.75
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 240

Check
speed 1/min : > 80
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 50.5

Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 630
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5

Aneroid pressure
hPa : -
Rated speed rpm : 925
Del. quantity
cm³/1000 strokes : 57.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000s. : \pm 8.0

LOW IDLE

Rack travel in mm : 9.00
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.05.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 050

Injection pump
Pump designation : PES6A95D320/3RS2916
EP type number : F 002 A10 010

Governor
Governor design. : R3V475...1050A00930R
Governor no. : F 002 A20 236

Cust. part No. : 328 3917

Customer-spec. information
Customer : CUMMINS
Motor : 6BT
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H12

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

| | |
|------------------|----------|
| Del. quantity | |
| cm3/1000 strokes | : 98.2 |
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| Check tolerance | |
| cm3/1000S. | : +- 3.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 4.0 |
| Check tolerance | |
| cm3/1000S. | : 6.0 |

| | |
|-------------------|-----------|
| Rated speed rpm | : 475 |
| Rack travel in mm | : 5.05 |
| Tolerance mm | : +- 0.10 |
| Del. quantity | |
| cm3/1000 strokes | : 18.5 |
| Tolerance | |
| cm3/1000 strokes | : +- 2.0 |
| Check tolerance | |
| cm3/1000S. | : +- 4.5 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 6.0 |
| Check tolerance | |
| cm3/1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|-----------|
| control lever | |
| position degree | : FREE |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : +- 0.20 |
| governor spring | |
| pre-tension | |
| click setting x | : 2.75 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|--------|
| Rated speed rpm | : 1050 |
|-----------------|--------|

| | |
|------------------|----------|
| Aneroid pressure | |
| hPa | : 900 |
| Del. quantity | |
| cm3/1000 strokes | : 98.2 |
| Tolerance | |
| cm3/1000 strokes | : +- 1.0 |
| Check tolerance | |
| cm3/1000S. | : +- 3.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 4.0 |
| Check tolerance | |
| cm3/1000S. | : 6.0 |

CONTROL LEVER

| | |
|------------------|----------|
| control lever | |
| position degree | : 100.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 10.25 |
| Rated speed rpm | : 1115 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.50 |
| Rated speed rpm | : 1170 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1275 |

| | |
|-----------------|---------|
| rack travel mm | : 4.50 |
| Rated speed rpm | : 1170 |
| Tolerance 1/min | : +- 15 |

LOW IDLE

| | |
|------------------|----------|
| control lever | |
| position degree | : 82.0 |
| tolerance degree | : +- 4.0 |

Control lever difference

| | |
|------------------|----------|
| Grad | : 18.0 |
| tolerance degree | : +- 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 475 |
| rack travel mm | : 4.55 |
| Tolerance mm | : +- 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.05
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 650
Pressure hPa : 900

Rated speed rpm : 650
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 650
Pressure hPa : 650
rack travel mm : 11.65
Tolerance mm : \pm 0.20

Pressure hPa : 400
rack travel mm : 10.70
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 106.2

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure

hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 82.9
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.05
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.05.97
Test oil : ISO 4113

Combination No. : 0 402 076 728

Injection pump
Pump designation : PES6P120A720RS3203
EP type number : 0 412 026 728

Governor
Governor design. : RSV425...1050P2A489
: -2
Governor no. : 0 421 833 291

Cust. part No. : RE32888

Customer-spec. information
Customer : DEERE
Motor : 6076 HRW01
Power KW : 175.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.03
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 10.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 34.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1250

rack travel mm : 4.00
Rated speed rpm : 1165

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425
rack travel mm : 5.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 640
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.45
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 13.70
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.70
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.20
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 815
rack travel mm : 13.10
Tolerance mm : + 0.20

Pressure hPa : 725
rack travel mm : 12.55
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000s. : + 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 159.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000s. : + 15.0

LOW IDLE

Rated speed rpm : 425
Rack travel in mm : 5.10
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000s. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.02.96
Test oil : ISO 4113

Combination No. : 0 402 196 707

Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 62645

Customer-spec. information
Customer : DEERE
Motor : 6081HF001
Power KW : 203.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm3/1000 strokes : 140.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 3.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880
Del. quantity
cm3/1000 strokes : 141.5
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Speed
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.03.96
Test oil : ISO 4113

Combination No. : 0 402 196 709

Injection pump
Pump designation : PES6P120A72ORS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. :

Cust. part No. : RE 67771

Customer-spec. information
Customer : DEERE
Motor : 6081HRW06
Power kW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

H22

tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 3.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610

Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113

Combination No. : 9 400 030 732

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1250A0C845R
Governor no. : 9 420 034 711

Cust. part No. : 3929407

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.95
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 91.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 6.0 |

| | |
|--|----------|
| Rated speed rpm | : 475 |
| Rack travel in mm | : 5.10 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 18.5 |
| Tolerance cm ³ /1000 strokes | : ± 2.0 |
| Check tolerance cm ³ /1000S. | : ± 4.5 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |
| governor spring pre-tension click setting x | : 5.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|--------|
| Rated speed rpm | : 1250 |
|-----------------|--------|

H25

| | |
|--|---------|
| Aneroid pressure hPa | : - |
| Del. quantity cm ³ /1000 strokes | : 91.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 6.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 117.0 |
| tolerance degree | : ± 4.0 |

| | |
|-----------------|--------|
| RATED SPEED | |
| rack travel mm | : 9.90 |
| Rated speed rpm | : 1315 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 5.50 |
| Rated speed rpm | : 1370 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1500 |

| | |
|-----------------|--------|
| rack travel mm | : 5.50 |
| Rated speed rpm | : 1370 |
| Tolerance 1/min | : ± 15 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 91.0 |
| tolerance degree | : ± 4.0 |

| | |
|----------------------------------|---------|
| Control lever difference Grad | : 26.0 |
| tolerance degree | : ± 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 475 |
| rack travel mm | : 4.60 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.95
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800
rack travel mm : 10.80
Tolerance mm : \pm 0.30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5

Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113

Combination No. : 9 400 030 740

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV425...1200AOC853R
Governor no. : 9 420 034 719

Cust. part No. : 3929410

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.05

| | |
|--|----------|
| Tolerance mm | : + 0.05 |
| Del. quantity cm ³ /1000 strokes | : 93.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 3.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 6.0 |

| | |
|--|----------|
| Rated speed rpm | : 425 |
| Rack travel in mm | : 5.20 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm ³ /1000 strokes | : 18.5 |
| Tolerance cm ³ /1000 strokes | : + 2.0 |
| Check tolerance cm ³ /1000S. | : + 4.5 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : + 0.20 |
| governor spring pre-tension click setting x | : 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1200 |
| Aneroid pressure hPa | : - |
| Del. quantity cm ³ /1000 strokes | : 93.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 3.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 6.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 115.0 |
| tolerance degree | : + 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 10.00 |
| Rated speed rpm | : 1275 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|--------|
| rack travel mm | : 6.10 |
| Rated speed rpm | : 1335 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1425 |

| | |
|-----------------|--------|
| rack travel mm | : 6.10 |
| Rated speed rpm | : 1335 |
| Tolerance 1/min | : + 15 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 88.0 |
| tolerance degree | : + 4.0 |

Control lever difference

| | |
|------------------|---------|
| Grad | : 27.0 |
| tolerance degree | : + 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 425 |
| rack travel mm | : 4.70 |
| Tolerance mm | : + 0.10 |

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425
rack travel mm : 5.20
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 11.05
Tolerance mm : \pm 0.05

Rated speed rpm : 800

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800
rack travel mm : 10.55

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 425
Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 028

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV45D...1100AGC905R
Governor no. : F 002 A20 219

Cust. part No. : 3931398

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 72.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 8.95

| | |
|--|-----------|
| Tolerance mm | : +- 0.05 |
| <hr/> | |
| Del. quantity cm ³ /1000 strokes | : 68.0 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : +- 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : +- 3.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 6.0 |
| <hr/> | |

| | |
|--|-----------|
| Rated speed rpm | : 450 |
| <hr/> | |
| Rack travel in mm | : 5.50 |
| Tolerance mm | : +- 0.10 |
| Del. quantity cm ³ /1000 strokes | : 18.0 |
| Tolerance cm ³ /1000 strokes | : +- 2.0 |
| Check tolerance cm ³ /1000S. | : +- 4.5 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|-----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : +- 0.20 |
| <hr/> | |
| governor spring pre-tension click setting x | : 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|----------|
| Rated speed rpm | : 1100 |
| Aneroid pressure hPa | : - |
| Del. quantity cm ³ /1000 strokes | : 68.0 |
| Tolerance cm ³ /1000 strokes | : +- 1.0 |
| Check tolerance cm ³ /1000S. | : +- 3.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 6.0 |

CONTROL LEVER

| | |
|----------------------------------|----------|
| control lever position degree | : 112.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|--------|
| rack travel mm | : 7.90 |
| Rated speed rpm | : 1175 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|--------|
| rack travel mm | : 5.20 |
| Rated speed rpm | : 1225 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1500 |

| | |
|-----------------|---------|
| rack travel mm | : 5.20 |
| Rated speed rpm | : 1230 |
| Tolerance 1/min | : +- 15 |

LOW IDLE

| | |
|----------------------------------|----------|
| control lever position degree | : 93.0 |
| tolerance degree | : +- 4.0 |

Control lever difference

| | |
|------------------|----------|
| Grad | : 19.0 |
| tolerance degree | : +- 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 450 |
| rack travel mm | : 5.00 |
| Tolerance mm | : +- 0.10 |

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 8.95
Tolerance mm : \pm 0.05

Rated speed rpm : 850

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800
rack travel mm : 8.45
Tolerance mm : \pm 0.30

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.05.97
Test oil : ISO 4113

Combination No. : 0 400 074 885

Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960

Governor
Governor design. : R3F400/2000M56-14
Governor no. : 0 420 021 271

Cust. part No. :

Customer-spec. information
Customer : DPICO
Motor : OM601-2.3l (Exp)
Power KW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 38.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 400

Rack travel in mm : 5.00

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 6.5

Tolerance

cm³/1000 strokes : ± 0.5

Speed

Tolerance

cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm³/1000 strokes : 38.5

Tolerance

cm³/1000 strokes : ± 0.5

Check tolerance

cm³/1000S. : ± 1.5

Speed

Tolerance

cm³/1000 strokes : 2.5

Check tolerance

cm³/1000S. : 3.0

RATED SPEED

control lever

position degree : 50.0

Rated speed rpm : 2250

rack travel mm : 7.40

Tolerance mm : ± 0.25

Rated speed rpm : 2550

rack travel mm : 0.50

Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 14.0

tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.00

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 3.40

Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 250

rack travel mm : 12.50

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.00

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.15

Tolerance mm : ± 0.05

Rated speed rpm : 1800

rack travel mm : 11.90

Tolerance mm : ± 0.10

Rated speed rpm : 2000

rack travel mm : 11.80

Tolerance mm : ± 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000

Ref. pressure
ALDA / ADA hPa : 940
rack travel mm : -0.10
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.40
Tolerance mm : +- 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -1.50
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm3/1000 strokes : 40.8
Tolerance
cm3/1000 strokes : +- 0.8
Check tolerance
cm3/1000S. : +- 1.8
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2000
Spreed
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 2.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2250

rack travel mm : 7.40
Tolerance mm : +- 0.25
Del. quantity
cm3/1000 strokes : 24.5
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : +- 1.50
Del. quantity
cm3/1000 strokes : 59.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

control lever
position degree : > 47.00

control lever
position degree : < 44.50

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 425

Rack travel in mm : 9.10
Tolerance mm : \pm 0.80

Del. quantity
cm³/1000 strokes : 23.5
Tolerance

cm³/1000 strokes : \pm 3.5

Check tolerance
cm³/1000s. : \pm 4.5

Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 400
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.05.97
Test oil : ISO 4113
Combination No. : 0 400 075 918
Injection pump
Pump designation : PES5M55C320RS191
EP type number : 0 410 055 951
Governor
Governor design. : RSF385/2000M88
Governor no. : 0 420 021 293

Cust. part No. :

Customer-spec. information
Customer : DPICO
Motor : OM662-D29LA
Power KW : 88.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 469 990 351
Inlet press. bar : 1.0
Test nozzle holde
assembly : 1 688 901 111
Opening pressure
bar : 148.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 21.00
Tolerance mm : ± 1.00
Firing order : 1- 2- 4- 5- 3
Phasing : 0-72-144-216-288
Start of delivery blocking

°NW after s.o.d. : 16.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 13.75
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 53.1
Tolerance
cm3/1000 strokes : ± 0.5
Check tolerance
cm3/1000S. : ± 1.5
Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 385

Rack travel in mm : 5.70
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 8.5
Tolerance
cm3/1000 strokes : +- 0.5

Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 5.50
Tolerance mm : +- 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1600

Del. quantity
cm3/1000 strokes : 53.1
Tolerance
cm3/1000 strokes : +- 0.5

Check tolerance
cm3/1000S. : +- 1.5

Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2250
rack travel mm : 8.75
Tolerance mm : +- 0.20

Rated speed rpm : 2600
rack travel mm : 0.50
Tolerance mm : +- 0.60

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.85

LOW IDLE

control lever
position degree : 11.0

Setting point w/out bumper spring
Rated speed rpm : 385
rack travel mm : 5.70

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 3.90
Tolerance mm : +- 0.10

Load pick-up

Rated speed rpm : 200
rack travel mm : 12.50

Rated speed rpm : 1000

CRT mm max. : 1.85

rack travel mm : 5.70
Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.75
Tolerance mm : +- 0.05

Rated speed rpm : 1700
rack travel mm : 13.45
Tolerance mm : +- 0.10

Rated speed rpm : 2000
rack travel mm : 12.95
Tolerance mm : +- 0.10

Rated speed rpm : 1000
rack travel mm : 11.80
Tolerance mm : +- 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 1400
 rack travel mm : 0.25
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 1100
 rack travel mm : 1.95
 Tolerance mm : \pm 0.10

Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : 3.90
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1600
 Rated speed rpm : 1700
 Del. quantity
 cm³/1000 strokes : 53.8
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1600
 Rated speed rpm : 2000
 Spreed
 Del. quantity
 cm³/1000 strokes : 52.1
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 2.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1000

Del. quantity
 cm³/1000 strokes : 43.2
 Tolerance
 cm³/1000 strokes : \pm 0.5
 Check tolerance
 cm³/1000S. : \pm 1.5
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 43.2
 Tolerance
 cm³/1000 strokes : \pm 0.5
 Check tolerance
 cm³/1000S. : \pm 1.5
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1600
 Rated speed rpm : 2250
 rack travel mm : 8.75
 Tolerance mm : \pm 0.20
 Del. quantity
 cm³/1000 strokes : 32.9
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.50
 Tolerance mm : \pm 1.50
 Del. quantity
 cm³/1000 strokes : 59.8
 Tolerance
 cm³/1000 strokes : \pm 4.0
 Check tolerance
 cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

LOW IDLE

Rated speed rpm : 385
Del. quantity
cm³/1000 strokes : 9.5
Check tolerance
cm³/1000S. : \pm 2.3
Speed
Check tolerance
cm³/1000S. : 1.5

control lever
position degree : > 45.00

control lever
position degree : < 42.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 11.0

Rated speed rpm : 400

Rack travel in mm : 8.85
Tolerance mm : \pm 0.80
Del. quantity
cm³/1000 strokes : 25.3
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 5.0
Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 385
Vacuum hPa : -450.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.05.97
Test oil : ISO 4113

Combination No. : 0 402 046 862

Injection pump
Pump designation : PES6P120A320RS3337
EP type number : 0 412 026 770

Governor
Governor design. : RQV300...1250PA1149K
Governor no. : 0 421 815 416

Cust. part No. : CCEP 5141A 66-218

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06-02-26 V4
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.18
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 10.50
Difference ° CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 11.20
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 153.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -6.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 34.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1346
guide sleeve
travel mm : 10.55
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31

Tolerance mm : \pm 0.20

Rated speed rpm : 905
guide sleeve
travel mm : 6.54
Tolerance mm : \pm 0.25

Rated speed rpm : 381
guide sleeve
travel mm : 2.38
Tolerance mm : \pm 0.25

Rated speed rpm : 431
guide sleeve
travel mm : 2.98
Tolerance mm : \pm 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.77
Tolerance mm : \pm 0.25

Rated speed rpm : 1580
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1380

Rack travel in mm : 10.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 297.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1325
Tolerance 1/min : \pm 15

rack travel mm : -7.20
Rated speed rpm : 1420
Tolerance 1/min : \pm 5

rack travel mm : -10.70
Tolerance mm : \pm 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 244.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $<$ -5.20

Testing:

Rated speed rpm : 300
rack travel mm : -6.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850
rack travel mm : -1.35
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

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Rated speed rpm : 1250
Pressure hPa : 1000

Rated speed rpm : 1250
Pressure hPa : -
rack travel mm : -1.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 160
rack travel mm : -1.30
Tolerance mm : \pm 0.10

Pressure hPa : 280
rack travel mm : -0.25
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -6.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.05.97
Test oil : ISO 4113

Combination No. : 0 402 046 864

Injection pump
Pump designation : PES6P120A320RS3337
: -1
EP type number : 0 412 026 772

Governor
Governor design. : RQV300...1250PA1149
: -1K
Governor no. : 0 421 815 421

Cust. part No. : CCEP 5142B 66-219

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 06-02-26 W4
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.35
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 13.00

Difference * CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -8.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1328
guide sleeve
travel mm : 9.98

Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : \pm 0.20

Rated speed rpm : 876
guide sleeve
travel mm : 6.02
Tolerance mm : \pm 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.59
Tolerance mm : \pm 0.25

Rated speed rpm : 1600
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1415

Rack travel in mm : 12.15
Tolerance mm : \pm 2.03

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1312
Tolerance 1/min : +- 15

rack travel mm : -8.80
Rated speed rpm : 1440
Tolerance 1/min : +- 5

rack travel mm : -12.30
Tolerance mm : +- 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 245.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : < -7.50

Testing:

Rated speed rpm : 300
rack travel mm : -8.30
Tolerance mm : +- 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850
rack travel mm : -1.75
Tolerance mm : +- 0.05

Rated speed rpm : 350
rack travel mm : -1.50
Tolerance mm : +- 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1000
rack travel mm : -1.40

Rated speed rpm : 1000

Pressure hPa : -
rack travel mm : -3.75
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 160
rack travel mm : -3.10
Tolerance mm : +- 0.15

Pressure hPa : 280
rack travel mm : -2.05
Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm3/1000 strokes : 139.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 118.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 102.0

Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -8.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.05.97
Test oil : ISO 4113

Combination No. : 0 402 646 670

Injection pump
Pump designation : PE6P120A320RS7438
EP type number : 0 412 626 965

Governor
Governor design. : RQV275...1150PA1296K
Governor no. : 0 421 815 523

Cust. part No. : 1316183

Customer-spec. information

Customer : DAF
Motor : PF 235 M
Power kW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 259.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.00

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1201
guide sleeve
travel mm : 10.07
Tolerance mm : +- 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.71
Tolerance mm : +- 0.20

Rated speed rpm : 811
guide sleeve
travel mm : 6.79
Tolerance mm : +- 0.25

Rated speed rpm : 450

guide sleeve
travel mm : 3.85
Tolerance mm : +- 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1321

Rack travel in mm : 12.25
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 259.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 1215

Tolerance 1/min : +- 5
Check

speed 1/min : +- 10

rack travel mm : 4.00

Rated speed rpm : 1340
Tolerance 1/min : +- 15

Check
speed 1/min : +- 20

rack travel mm : 0.70

Tolerance mm : \pm 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : $>$ 7.60

Testing:

Rated speed rpm : 275
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 395

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 13.50
Tolerance mm : \pm 0.05

Rated speed rpm : 1130
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 13.35
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 13.45
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 12.85
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 1150
rack travel mm : 13.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 875
Pressure hPa : 1500
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 875
Pressure hPa : -
rack travel mm : 9.15
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 390
rack travel mm : 12.20
Tolerance mm : \pm 0.05

Pressure hPa : 130
rack travel mm : 10.10
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 238.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.05.97
Test oil : ISO 4113

Combination No. : 0 402 646 671

Injection pump
Pump designation : PE6P120A320RS7421
EP type number : 0 412 626 956

Governor
Governor design. : RQV275...1150PA1297K
Governor no. : 0 421 815 524

Cust. part No. : 1316184/1

Customer-spec. information
Customer : DAF
Motor : PF 205 M
Power kW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.90

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206
guide sleeve
travel mm : 10.12
Tolerance mm : ± 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.71
Tolerance mm : ± 0.20

Rated speed rpm : 813
guide sleeve
travel mm : 6.81
Tolerance mm : ± 0.25

Rated speed rpm : 450

guide sleeve
travel mm : 3.85
Tolerance mm : ± 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1329

Rack travel in mm : 11.10
Tolerance mm : ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1195

Tolerance 1/min : ± 5

Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1300

Tolerance 1/min : ± 15

Check
speed 1/min : ± 20

rack travel mm : 0.70

Tolerance mm : \pm 0.70
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : $>$ 7.50

Testing:

Rated speed rpm : 275
rack travel mm : 4.90
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1130
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.25
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 11.50
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 10.85
Tolerance mm : \pm 0.10

Rated speed rpm : 1150
rack travel mm : 12.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 875
Pressure hPa : 1500
rack travel mm : 12.35
Tolerance mm : \pm 0.10

Rated speed rpm : 875
Pressure hPa : -
rack travel mm : 8.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 420
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Pressure hPa : 150
rack travel mm : 9.20
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 207.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.05.97
Test oil : ISO 4113

Combination No. : 0 402 646 672

Injection pump
Pump designation : PE6P120A320RS7421
EP type number : 0 412 626 956

Governor
Governor design. : RQV275...1150PA1298K
Governor no. : 0 421 815 525

Cust. part No. : 1316185/1

Customer-spec. information
Customer : DAF
Motor : PF 183 M
Power KW : 183.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.90

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
guide sleeve
travel mm : 10.06
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.71
Tolerance mm : \pm 0.20

Rated speed rpm : 811
guide sleeve
travel mm : 6.79
Tolerance mm : \pm 0.25

Rated speed rpm : 450

guide sleeve
travel mm : 3.85
Tolerance mm : \pm 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1343

Rack travel in mm : 9.80
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.80
Rated speed rpm : 1190

Tolerance 1/min : \pm 5

Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1285

Tolerance 1/min : \pm 15

Check
speed 1/min : \pm 20

rack travel mm : 0.70

Tolerance mm : \pm 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 275
rack travel mm : 4.90
Tolerance mm : \pm 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 350
rack travel mm : 11.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1130
rack travel mm : 10.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 10.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 9.35
Tolerance mm : \pm 0.10

Rated speed rpm : 1150
rack travel mm : 10.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 875
Pressure hPa : 1500
rack travel mm : 11.10
Tolerance mm : \pm 0.10

Rated speed rpm : 875
Pressure hPa : -
rack travel mm : 8.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 350
rack travel mm : 10.20
Tolerance mm : \pm 0.05

Pressure hPa : 130
rack travel mm : 8.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.97
Test oil : ISO 4113

Combination No. : 0 402 648 926

Injection pump
Pump designation : PE8P120A320LS7840
EP type number : 0 412 628 850

Governor
Governor design. : RQ300/1050PA972-11
Governor no. : 0 421 801 739

Cust. part No. : 0220747002

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 A
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 6.50
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1104
guide sleeve
travel mm : 6.37
Tolerance mm : +- 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.85
Tolerance mm : +- 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : +- 0.10

Rated speed rpm : 402
guide sleeve
travel mm : 3.68
Tolerance mm : +- 0.10

Rated speed rpm : 540
guide sleeve
travel mm : 6.00

Tolerance mm : +- 0.10

Rated speed rpm : 1290
guide sleeve
travel mm : 11.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 11.60
Rated speed rpm : 1098
Tolerance 1/min : +- 8

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : +- 15

rack travel mm : 0.75
Tolerance mm : +- 0.75
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 7.90

Testing:

Rated speed rpm : 300
rack travel mm : 6.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 435
Tolerance 1/min : \pm 29

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 450
Pressure hPa : 1000
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Rated speed rpm : 450
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 450

Pressure hPa : 250
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 380
rack travel mm : 12.10
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.50

| | | | |
|-------------------------------|---|---|------|
| Tolerance mm | : | ± | 0.10 |
| Del. quantity | | | |
| cm ³ /1000 strokes | : | | 13.0 |
| Tolerance | | | |
| cm ³ /1000 strokes | : | ± | 3.0 |
| Check tolerance | | | |
| cm ³ /1000S. | : | ± | 6.0 |
| Speed | | | |
| Tolerance | | | |
| cm ³ /1000 strokes | : | | 4.0 |
| Check tolerance | | | |
| cm ³ /1000S. | : | | 8.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.97
Test oil : ISO 4113

Combination No. : 0 402 648 927

Injection pump
Pump designation : PE8P120A320LS7840
EP type number : 0 412 628 850

Governor
Governor design. : RQV300...1050PA797
: -38
Governor no. : 0 421 814 084

Cust. part No. : 0220747102

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 A
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

K09

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.50
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1100

Rack travel in mm : 16.50
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 11.60
Rated speed rpm : 1095
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 86.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.90

Testing:

Rated speed rpm : 300
rack travel mm : 6.50
Tolerance mm : +- 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.60
Tolerance mm : +- 0.05

Rated speed rpm : 800

rack travel mm : 12.60
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Pressure hPa : 1000
rack travel mm : 12.60
Tolerance mm : +- 0.05

Rated speed rpm : 450
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : +- 0.15

MEASUREMENT

Pressure hPa : 250
rack travel mm : 11.40
Tolerance mm : +- 0.20

Pressure hPa : 380
rack travel mm : 12.10
Tolerance mm : +- 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 138.0

Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 190.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.50
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 13.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Speed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.97
Test oil : ISO 4113

Combination No. : 0 402 676 832

Injection pump
Pump designation : PE6P120A320LS7898
EP type number : 0 412 626 957

Governor
Governor design. : RSV350...1000POA648
Governor no. : 0 421 833 565

Cust. part No. : 0270743202

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 A
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.75
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 172.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 172.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1030
rack travel mm : 10.70

Rated speed rpm : 1080
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1031
rack travel mm : 10.70

Rated speed rpm : 1081
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1032
rack travel mm : 10.70

Rated speed rpm : 1082
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1033
rack travel mm : 10.70

Rated speed rpm : 1083
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1034
rack travel mm : 10.70

Rated speed rpm : 1084
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1035
rack travel mm : 10.70

Rated speed rpm : 1085
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : \pm 0.10

K14

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 11.75
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.75
Tolerance mm : \pm 0.05

Rated speed rpm : 400
rack travel mm : 11.20
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 11.75
Tolerance mm : \pm 0.05

Rated speed rpm : 400
Pressure hPa : -
rack travel mm : 10.05
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 300
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 11.40
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 350
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 131.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 136.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 350

K15

Rack travel in mm : 5.00
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.05.97
Test oil : ISO 4113

Combination No. : 0 402 676 836

Injection pump
Pump designation : PE6P120A320LS7898
EP type number : 0 412 626 957

Governor
Governor design. : RSV350...105QPOA668
Governor no. : 0 421 833 587

Cust. part No. : 0280740302

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 A euromot
Power kW : 190.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.30
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000s. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 93.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070
rack travel mm : 12.30

Rated speed rpm : 1152
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1071
rack travel mm : 12.30

Rated speed rpm : 1153
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1072
rack travel mm : 12.30

Rated speed rpm : 1154
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1073
rack travel mm : 12.30

Rated speed rpm : 1155
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1074
rack travel mm : 12.30

Rated speed rpm : 1156
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1075
rack travel mm : 12.30

Rated speed rpm : 1157
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 415

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 12.05
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 400
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 500
rack travel mm : 12.05
Tolerance mm : \pm 0.15

Pressure hPa : 350
rack travel mm : 10.80
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 207.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 500
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.40
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.05.97
Test oil : ISO 4113

Combination No. : 0 402 746 653

Injection pump
Pump designation : PES6P120A720LS7209
: -3
EP type number : 0 412 726 941

Governor
Governor design. : RQV300...1100PA1006
: -2K
Governor no. : 0 421 815 467

Cust. part No. : 51.11103-7424

Customer-spec. information
Customer : MAN
Motor : D 2866 LE 402
Power KW : 368.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 175
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5

K20

Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 315.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 5.20

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1157
guide sleeve
travel mm : 10.23
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : + 0.20

Rated speed rpm : 792
guide sleeve
travel mm : 6.51
Tolerance mm : + 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 3.81
Tolerance mm : + 0.25

Rated speed rpm : 1390
guide sleeve
travel mm : 13.50

Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 2000

Del. quantity
cm³/1000 strokes : 315.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.80

Rated speed rpm : 1145

Tolerance 1/min : + 8

rack travel mm : 4.00

Rated speed rpm : 1256

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.70

Testing:

Rated speed rpm : 300

rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 326

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 13.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 2000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
Pressure hPa : -
rack travel mm : 9.35
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1100
Pressure hPa : 250
rack travel mm : 9.65
Tolerance mm : \pm 0.05

Pressure hPa : 1000
rack travel mm : 13.30
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 2000
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : 2000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 305.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

Note remarks

Edition : 21.05.97
Test oil : ISO 4113

Injection pump
Pump designation : PES6P120A720LS7209
: -1
EP type number : 0 412 726 849

Cust. part No. : 51.11103-7071

Customer : MAN
Motor : D2866LXE
Power KW : 324.0

Inlet line : 4.1

Overflow valve : 1 417 413 025

Test nozzle holde
assembly : 1 688 901 105

Test Lines : 1 680 750 089

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

Test pressure bar : 26.0
Tolerance bar : \pm 1.0

```
Prestroke mm      :      4.85
Tolerance mm      :  +-  0.05
Check
tolerance mm      :  +-  0.10
```

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

```

Phasing      : 0-60-120-180-240
              : -300
Tolerance    : +- 0.50
Check
tolerance °NW : +- 0.75

```

Rated speed rpm : 1100

Rack travel in mm : 13.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 253.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 23.0

Tolerance

cm³/1000 strokes : ± 3.0

Check tolerance

cm³/1000s. : ± 6.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1156

guide sleeve

travel mm : 10.06

Tolerance mm : ± 0.15

Rated speed rpm : 300

guide sleeve

travel mm : 1.77

Tolerance mm : ± 0.20

Rated speed rpm : 833

guide sleeve

travel mm : 6.98

Tolerance mm : ± 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 3.78

Tolerance mm : ± 0.25

Rated speed rpm : 1420

guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 253.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000s. : ± 4.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 118.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 1145

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1250

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1400

LOW IDLE

control lever

position degree : 72.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300

rack travel mm : 5.00

Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 11.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.20
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 560
rack travel mm : 12.20
Tolerance mm : \pm 0.20

Pressure hPa : 100
rack travel mm : 9.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 221.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.05.97
Test oil : ISO 4113
Combination No. : 9 400 087 437
Injection pump
Pump designation : PE6P110A320RS3108Y
EP type number : 0 411 816 729
Governor
Governor design. : RQV250...1100PA589
: -3
Governor no. : 9 420 080 288
Cust. part No. :

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : THD 100 EC
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : +- 1.5
Test Lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 3.05
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 11.15
Tolerance mm : +- 0.05
Del. quantity
cm³/1000 strokes : 139.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 32.0
Tolerance
cm3/1000 strokes : \pm 2.5
Check tolerance
cm3/1000S. : \pm 2.5

Spread
Tolerance
cm3/1000 strokes : 4.5
Check tolerance
cm3/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 950
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.20

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : \pm 0.10

Rated speed rpm : 500
guide sleeve
travel mm : 4.50
Tolerance mm : \pm 0.40

Rated speed rpm : 700
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.20

Rated speed rpm : 1100
guide sleeve
travel mm : 7.25
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1175

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 900

Del. quantity
cm3/1000 strokes : 139.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : \pm 4.0

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.10
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 64.0
tolerance degree : \pm 4.0

control lever
position degree : 12.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : $>$ 6.70

Testing:

Rated speed rpm : 250
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 338

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 11.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 430
rack travel mm : 1.20
Tolerance mm : \pm 0.10

Pressure hPa : 280
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700

L02

Del. quantity
cm³/1000 strokes : 107.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 14.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000s. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.05.97
Test oil : ISO 4113

Combination No. : 9 400 087 497

Injection pump
Pump designation : PES6P120A120RS3344
EP type number : 9 400 087 090

Governor
Governor design. : RQV350...1100PA1207
Governor no. : 9 420 080 379

Cust. part No. : 3355976

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTAA - 290
Power KW : 214.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 3.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 1.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 207.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.80
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 650
guide sleeve

travel mm : 5.55
Tolerance mm : +- 0.25

Rated speed rpm : 1150
guide sleeve

travel mm : 8.40
Tolerance mm : +- 0.10

Rated speed rpm : 350
guide sleeve

travel mm : 1.55
Tolerance mm : +- 0.25

Rated speed rpm : 500
guide sleeve

travel mm : 4.05

Tolerance mm : +- 0.25

Rated speed rpm : 1400

guide sleeve
travel mm : 10.55

Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1150

Rack travel in mm : 16.50

Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1300

Del. quantity
cm³/1000 strokes : 207.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 63.0

tolerance degree : +- 4.0

control lever

position degree : 118.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 14.50

Rated speed rpm : 1150

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1360

Tolerance 1/min : +- 15

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 69.0
tolerance degree : \pm 4.0

control lever
position degree : 14.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 9.50

Testing:

Rated speed rpm : 325
rack travel mm : 6.80
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 15.55
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 15.95
Tolerance mm : \pm 0.05

Rated speed rpm : 720
rack travel mm : 15.95
Tolerance mm : \pm 0.05

Rated speed rpm : 960
rack travel mm : 15.55
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 15.95
Tolerance mm : \pm 0.05

Rated speed rpm : 500

L05

Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 2.65
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 1.00
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1300
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 217.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.05.97
Test oil : ISO 4113

Combination No. : 0 400 462 049

Injection pump
Pump designation : PES2A65D410/3RS1273
EP type number : 0 410 462 995

Governor
Governor design. : RSV400...1225A1C1091
: DL
Governor no. : 0 420 232 386

Cust. part No. :

Customer-spec. information
Customer : HOLDER

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

L07

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Firing order : 1- 2

Phasing : 0-90

BASIC SETTING

Rated speed rpm : 1225

Rack travel in mm : 10.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 40.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 400

Rack travel in mm : 7.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 12.5

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : +- 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1225
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 40.5
Tolerance
cm³/1000 strokes : +- 0.5
Check tolerance
cm³/1000S. : +- 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.80
Rated speed rpm : 1270
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1310
Tolerance 1/min : +- 15

rack travel mm : 1.00

L08

Tolerance mm : +- 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 26.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 7.80
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400
rack travel mm : 7.30
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 590
Tolerance 1/min : +- 30

Rated speed rpm : 700

CRT mm max. : < 1.00

TORQUE CONTROL

Rated speed rpm : 1225
rack travel mm : 10.85
Tolerance mm : +- 0.05

Rated speed rpm : 1000
rack travel mm : 11.20
Tolerance mm : +- 0.10

Rated speed rpm : 500
rack travel mm : 11.45
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 40.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 2.0
Speed
Tolerance
cm³/1000 strokes : 2.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 2.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : +- 0.75
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 strokes : +- 5.0
Check tolerance
cm³/1000S. : +- 8.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 7.30
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 4.5
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.05.97
Test oil : ISO 4113

Combination No. : C 400 864 104

Injection pump
Pump designation : PES4A95D410/3RS2789
EP type number : 0 410 894 995

Governor
Governor design. : RSV325...1250A5C877L
Governor no. : 0 420 232 632

Cust. part No. : 0423 2047 KY

Customer spec. information
Customer : KHD-DMI
Motor : BF4L 913 C
Power KW : 78.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.70
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 92.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 11.5

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spread
Tolerance
cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 92.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Spread
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.70
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1555

rack travel mm : 4.00
Rated speed rpm : 1405
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.70
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.05.97
Test oil : ISO 4113

Combination No. : 0 400 865 028

Injection pump
Pump designation : PES5A95D410/3RS2906
EP type number : 0 410 895 971

Governor
Governor design. : RSV325...1250A5C858L
Governor no. : 0 420 232 621

Cust. part No. : 0423 1598 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F5L912/913_NEU
Power KW : 67.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 70.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.5

Spread
Tolerance

cm³/1000 strokes : 5.5
Check tolerance

cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 70.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.0

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : +- 4.0

RATED SPEED
rack travel mm : 9.80
Rated speed rpm : 1295
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1550

rack travel mm : 4.00
Rated speed rpm : 1400
Tolerance 1/min : +- 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.05.97
Test oil : ISO 4113

Combination No. : 0 400 866 222

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...1250A5C858L
Governor no. : 0 420 232 621

Cust. part No. : 0423 1601 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F6L912/913_NEU
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1550

rack travel mm : 4.00
Rated speed rpm : 1400
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 595
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.05.97
Test oil : ISO 4113

Combination No. : 0 400 866 227

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...1250A5C870L
Governor no. : 0 420 232 625

Cust. part No. : 0423 1964 KY

Customer-spec. information
Customer : KHD-DMI
Motor : BF6L 913
Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 82.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 9.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 14.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 82.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.00
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1565

rack travel mm : 4.00
Rated speed rpm : 1415
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 9.10
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 9.60
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.00

Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 14.10
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 13.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 14.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 13.30
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 13.80
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 69.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 9.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 14.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.05.97
Test oil : ISO 4113

Combination No. : 0 400 866 229

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...1250A5C873L
Governor no. : 0 420 232 628

Cust. part No. : 0423 2077 KY

Customer-spec. information
Customer : KHD-DMI
Motor : BF6L 913
Power kW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 82.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 8.0

Rated speed rpm : 325

Rack travel in mm : 9.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 14.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000s. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000s. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 82.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 8.0

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.00
Rated speed rpm : 1295

Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355

Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1565

rack travel mm : 4.00

Rated speed rpm : 1415

Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 9.10

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 9.60

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 610

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 13.00

Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 14.10
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 13.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 14.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 13.30
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 13.80
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 69.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 9.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 14.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.05.97
Test oil : ISO 4113
Combination No. : 0 400 866 232
Injection pump
Pump designation : PES6A95D410/3RS2909
EP type number : 0 410 896 883
Governor
Governor design. : RSV325...1250A5C876L
Governor no. : 0 420 232 631

Cust. part No. : 0423 2063 KY

Customer-spec. information
Customer : KHD-DMI
Motor : BF6L 913C
Power KW : 141.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 11.80
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 105.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.80
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1515

rack travel mm : 4.00
Rated speed rpm : 1365
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 4.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 4.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 455
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.80

Tolerance mm : \pm 0.05
Rated speed rpm : 750
rack travel mm : 11.85
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1450
rack travel mm : 11.85
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 470
rack travel mm : 11.30
Tolerance mm : \pm 0.05

Pressure hPa : 320
rack travel mm : 10.75
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 67.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.70
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.05.97
Test oil : ISO 4113

Combination No. : 0 400 866 235

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...1250A5C917L
Governor no. : 0 420 232 639

Cust. part No. : 0423 2334 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F6L913
Power KW : 89.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance

cm³/1000 strokes : 5.5
Check tolerance

cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.35
Rated speed rpm : 1295

Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355

Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1550

rack travel mm : 4.00

Rated speed rpm : 1400

Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 595

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.80
Tolerance mm : \pm 0.10

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113
Combination No. : 0 400 876 256
Injection pump
Pump designation : PES6A90D410RS2293
EP type number : 0 410 896 031
Governor
Governor design. : RSV350...1300AOC1101
: L
Governor no. : 0 420 232 410
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM352A
Power KW : 110.3

TEST BENCH REQUIREMENTS

Inlet line : 1.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

MO3

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 10.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 71.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 71.5
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 2.5
Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1500

rack travel mm : 4.00
Rated speed rpm : 1430
Tolerance 1/min : \pm 15

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : \pm 0.10

Testing:

rack travel mm : 2.00
Rated speed rpm : 480
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 10.65
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.00
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 63.0

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.10
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.05.97
Test oil : ISO 4113

Combination No. : 9 400 030 669

Injection pump
Pump designation : PES6A100D320/3RS3503
EP type number : 9 410 037 213

Governor
Governor design. : RQV400...1250AB1301R
Governor no. : 9 420 030 158

Cust. part No. : TATA-CUMMINS

Customer-spec. information
Customer : CUMMINS
Motor : 6BTAA
Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2;

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : ± 3.0

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.75

Tolerance mm : \pm 0.05

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1347
guide sleeve
travel mm : 8.48
Tolerance mm : \pm 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 1.71
Tolerance mm : \pm 0.20

Rated speed rpm : 880
guide sleeve
travel mm : 4.97
Tolerance mm : \pm 0.25

Rated speed rpm : 499
guide sleeve
travel mm : 2.75
Tolerance mm : \pm 0.25

Rated speed rpm : 549
guide sleeve
travel mm : 3.30
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 3.37
Tolerance mm : \pm 0.25

Rated speed rpm : 1620
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 16.00
Tolerance mm : \pm 1.30

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.75
Rated speed rpm : 1300
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1425
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1485

LOW IDLE

control lever
position degree : 15.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

Testing:

Rated speed rpm : 400
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 625
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.75
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.75
Tolerance mm : \pm 0.10

Rated speed rpm : 1250
rack travel mm : 11.75
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 600
rack travel mm : 11.75
Tolerance mm : \pm 0.10

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 10.50
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 400
rack travel mm : 11.20
Tolerance mm : \pm 0.20

Pressure hPa : 340
rack travel mm : 10.80
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 170
Rated speed rpm : > 300

Check
speed 1/min : < 190
Check
speed 1/min : < 340

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.00
Tolerance mm : \pm 0.75

LOW IDLE

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.05.97
Test oil : ISO 4113

Combination No. : 9 400 030 707

Injection pump
Pump designation : PES6A100D320/3RS3511
EP type number : 9 410 037 253

Governor
Governor design. : RQV400...1250AB1320R
Governor no. : F 002 A30 000

Cust. part No. : TATA-CUMMINS

Customer-spec. information
Customer : CUMMINS
Motor : 6BT - 145 BHP

TEST BENCH REQUIREMENTS

Inlet line : 3.2;

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.20

Tolerance mm : \pm 0.05

Rack travel in mm : 8.45
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1347
guide sleeve
travel mm : 8.48
Tolerance mm : \pm 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 1.71
Tolerance mm : \pm 0.20

Rated speed rpm : 880
guide sleeve
travel mm : 4.97
Tolerance mm : \pm 0.25

Rated speed rpm : 499
guide sleeve
travel mm : 2.75
Tolerance mm : \pm 0.25

Rated speed rpm : 549
guide sleeve
travel mm : 3.30
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 3.37
Tolerance mm : \pm 0.25

Rated speed rpm : 1620
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 16.00
Tolerance mm : \pm 1.30

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.20
Rated speed rpm : 1325
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1455
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1525

LOW IDLE

control lever
position degree : 20.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

Testing:

Rated speed rpm : 400
rack travel mm : 8.45
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 760
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 12.20
Tolerance mm : \pm 0.05

Rated speed rpm : 1250

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 750
Tolerance mm : \pm 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 11.25
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 445
rack travel mm : 11.95
Tolerance mm : \pm 0.20

Pressure hPa : 390
rack travel mm : 11.60
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 170
Rated speed rpm : > 300

Check
speed 1/min : < 190
Check
speed 1/min : < 340

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.50
Tolerance mm : \pm 0.50

LOW IDLE

Rack travel in mm : 8.45
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.05.97
Test oil : ISO 4113
Combination No. : 9 400 030 708
Injection pump
Pump designation : PES6A100D320/3RS3506
EP type number : 9 410 037 236
Governor
Governor design. : RQV400...1250AB1328R
Governor no. : F 002 A30 003

Cust. part No. : TATA-CUMMINS

Customer-spec. information
Customer : CUMMINS
Motor : 6BT - 125 ps

TEST BENCH REQUIREMENTS

Inlet line : 1.1;
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 9 451 037 430
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 5.75
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 10.30
Tolerance mm : ± 0.05

Rack travel in mm : 6.40
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1347
guide sleeve
travel mm : 8.48
Tolerance mm : \pm 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 1.71
Tolerance mm : \pm 0.20

Rated speed rpm : 880
guide sleeve
travel mm : 4.97
Tolerance mm : \pm 0.25

Rated speed rpm : 499
guide sleeve
travel mm : 2.75
Tolerance mm : \pm 0.25

Rated speed rpm : 549
guide sleeve
travel mm : 3.30
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 3.37
Tolerance mm : \pm 0.25

Rated speed rpm : 1620
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1250
Rack travel in mm : 16.00
Tolerance mm : \pm 1.30

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.30
Rated speed rpm : 1335
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1430
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1490

LOW IDLE

control lever
position degree : 15.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

Testing:

Rated speed rpm : 400
rack travel mm : 6.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 630
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.30
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 10.30
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : > 170
Rated speed rpm : > 300

Check
speed 1/min : < 190
Check
speed 1/min : < 340

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.40
Tolerance mm : \pm 0.50

LOW IDLE

Rack travel in mm : 6.40
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113

Combination No. : 9 400 030 751

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1050A0C866R
Governor no. : F 002 A20 202

Cust. part No. : 393 0158

Customer-spec. information
Customer : CUMMINS
Motor : 6BT
Power KW : 94.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.00
Tolerance mm : ± 0.05

| | |
|-----------------------------------|---------|
| Del. quantity cm3/1000 strokes | : 86.1 |
| Tolerance cm3/1000 strokes | : ± 1.0 |
| Check tolerance cm3/1000S. | : ± 3.0 |
| Speed | |
| Tolerance cm3/1000 strokes | : 4.0 |
| Check tolerance cm3/1000S. | : 6.5 |

| | |
|-----------------------------------|----------|
| Rated speed rpm | : 475 |
| Rack travel in mm | : 6.60 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm3/1000 strokes | : 18.6 |
| Tolerance cm3/1000 strokes | : ± 2.0 |
| Check tolerance cm3/1000S. | : ± 4.5 |
| Speed | |
| Tolerance cm3/1000 strokes | : 6.0 |
| Check tolerance cm3/1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |
| governor spring pre-tension click setting x | : 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|--------|
| Rated speed rpm | : 1050 |
|-----------------|--------|

| | |
|-----------------------------------|---------|
| Aneroid pressure hPa | : 800 |
| Del. quantity cm3/1000 strokes | : 86.1 |
| Tolerance cm3/1000 strokes | : ± 1.0 |
| Check tolerance cm3/1000S. | : ± 3.0 |
| Speed | |
| Tolerance cm3/1000 strokes | : 4.0 |
| Check tolerance cm3/1000S. | : 6.5 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 102.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 11.00 |
| Rated speed rpm | : 1095 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1190 |
| Tolerance 1/min | : ± 15 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1280 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1200 |
| Tolerance 1/min | : ± 15 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 84.0 |
| tolerance degree | : ± 4.0 |

Control lever difference

| | |
|------------------|---------|
| Grad | : 18.0 |
| tolerance degree | : ± 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 475 |
| rack travel mm | : 6.10 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 475
rack travel mm : 6.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 650
Pressure hPa : 800

Rated speed rpm : 650
Pressure hPa : --
rack travel mm : 12.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 650

Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : \pm 0.20

Pressure hPa : 475
rack travel mm : 12.20
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 97.0

M17

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 6.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.6
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.05.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 048

Injection pump
Pump designation : PES6A95D320/3RS2916
EP type number : F 002 A10 010

Governor
Governor design. : RSV425...950A0C927R
Governor no. : F 002 A20 235

Cust. part No. : 3283916

Customer-spec. information

Customer : CUMMINS
Motor : 6BTA-16Q/1900
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.30

| | |
|--|-----------|
| Tolerance mm | : +- 0.05 |
| <hr/> | |
| Del. quantity cm ³ /1000 strokes | : 119.4 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : +- 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : +- 3.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 6.5 |
| <hr/> | |

| | |
|--|-----------|
| Rated speed rpm | : 425 |
| <hr/> | |
| Rack travel in mm | : 6.00 |
| Tolerance mm | : +- 0.10 |
| Del. quantity cm ³ /1000 strokes | : 23.5 |
| Tolerance cm ³ /1000 strokes | : +- 2.0 |
| Check tolerance cm ³ /1000S. | : +- 4.5 |
| <hr/> | |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 6.0 |
| Check tolerance cm ³ /1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|-----------|
| control lever position degree | : FREE |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : +- 0.20 |
| <hr/> | |
| governor spring pre-tension click setting x | : 2.75 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|----------|
| Rated speed rpm | : 950 |
| Aneroid pressure hPa | : 850 |
| Del. quantity cm ³ /1000 strokes | : 119.4 |
| Tolerance cm ³ /1000 strokes | : +- 1.0 |
| Check tolerance cm ³ /1000S. | : +- 3.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.5 |

CONTROL LEVER

| | |
|----------------------------------|----------|
| control lever position degree | : 88.0 |
| tolerance degree | : +- 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 12.30 |
| Rated speed rpm | : 1000 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1050 |
| Tolerance 1/min | : +- 5 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1200 |

| | |
|-----------------|---------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1050 |
| Tolerance 1/min | : +- 15 |

LOW IDLE

| | |
|----------------------------------|----------|
| control lever position degree | : 70.0 |
| tolerance degree | : +- 4.0 |

| | |
|----------------------------------|----------|
| Control lever difference Grad | : 18.0 |
| tolerance degree | : +- 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|-----------|
| Rated speed rpm | : 425 |
| rack travel mm | : 5.20 |
| Tolerance mm | : +- 0.10 |

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.30
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 850

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.30
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 11.30
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 80.8
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 122.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 425

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.05.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 052

Injection pump
Pump designation : PES6A95D320/3RS2916
EP type number : F 002 A10 010

Governor
Governor design. : RSV425...1000AOC932R
Governor no. : F 002 A20 238

Cust. part No. : 328 3918

Customer-spec. information
Customer : CUMMINS
Motor : SBTA-147 HP
Power kW : 106.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.40

| | |
|--|----------|
| Tolerance mm | : ± 0.05 |
| <hr/> | |
| Del. quantity cm ³ /1000 strokes | : 109.8 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 6.5 |
| <hr/> | |

| | |
|--|----------|
| Rated speed rpm | : 425 |
| <hr/> | |
| Rack travel in mm | : 5.50 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 17.6 |
| Tolerance cm ³ /1000 strokes | : ± 2.0 |
| Check tolerance cm ³ /1000S. | : ± 4.5 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 6.0 |
| Check tolerance cm ³ /1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR.

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : FREE |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |
| <hr/> | |
| governor spring pre-tension click setting x | : 3.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1000 |
| Aneroid pressure hPa | : 1200 |
| Del. quantity cm ³ /1000 strokes | : 109.8 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.5 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 88.0 |
| tolerance degree | : ± 4.0 |

| | |
|-----------------|---------|
| <hr/> | |
| RATED SPEED | |
| rack travel mm | : 11.40 |
| Rated speed rpm | : 1065 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1100 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1250 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1100 |
| Tolerance 1/min | : ± 15 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 67.0 |
| tolerance degree | : ± 4.0 |

| | |
|----------------------------------|---------|
| Control lever difference Grad | : 21.0 |
| tolerance degree | : ± 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 425 |
| rack travel mm | : 5.00 |
| Tolerance mm | : ± 0.10 |

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.40
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 11.80
Tolerance mm : \pm 0.20

Pressure hPa : 475
rack travel mm : 11.30
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 83.7
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 425

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.6
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.05.97
Test oil : ISO 4113

Combination No. : 9 400 030 752

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 034 214

Governor
Governor design. : RSV475...1100A0C867R
Governor no. : F 002 A20 203

Cust. part No. : 3930151

Customer-spec. information
Customer : CDC
Motor : 4BT
Power KW : 66.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.90
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 97.0 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 6.5 |
| <hr/> | |

| | |
|--|----------|
| Rated speed rpm | : 475 |
| Rack travel in mm | : 6.80 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 18.5 |
| Tolerance cm ³ /1000 strokes | : ± 2.0 |
| Check tolerance cm ³ /1000S. | : ± 4.5 |
| Speed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 6.0 |
| Check tolerance cm ³ /1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |
| <hr/> | |
| governor spring pre-tension click setting x | : 4.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|--------|
| Rated speed rpm | : 1100 |
|-----------------|--------|

| | |
|--|---------|
| Aneroid pressure hPa | : - |
| Del. quantity cm ³ /1000 strokes | : 97.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| Speed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.5 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 107.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 11.90 |
| Rated speed rpm | : 1165 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1270 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1275 |
| Tolerance 1/min | : ± 15 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 86.0 |
| tolerance degree | : ± 4.0 |

| | |
|----------------------------------|---------|
| Control lever difference Grad | : 21.0 |
| tolerance degree | : ± 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 475 |
| rack travel mm | : 6.30 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 6.80
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.90
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 103.5
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm3/1000 strokes : 121.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 6.80
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 18.5

Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.05.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 010

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1050A0C887R
Governor no. : F 002 A20 209

Cust. part No. : 3930160

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 107.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.50
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 103.5 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.5 |

| | |
|--|----------|
| Rated speed rpm | : 475 |
| Rack travel in mm | : 5.80 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 19.0 |
| Tolerance cm ³ /1000 strokes | : ± 2.0 |
| Check tolerance cm ³ /1000S. | : ± 4.5 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 6.0 |
| Check tolerance cm ³ /1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : FREE |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |
| governor spring pre-tension click setting x | : 3.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|--------|
| Rated speed rpm | : 1050 |
|-----------------|--------|

| | |
|--|---------|
| Aneroid pressure hPa | : 1000 |
| Del. quantity cm ³ /1000 strokes | : 103.5 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.5 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 103.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 11.50 |
| Rated speed rpm | : 1120 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 6.85 |
| Rated speed rpm | : 1175 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|--------|
| rack travel mm | : 6.85 |
| Rated speed rpm | : 1175 |
| Tolerance 1/min | : ± 15 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 83.0 |
| tolerance degree | : ± 4.0 |

| | |
|----------------------------------|---------|
| Control lever difference Grad | : 20.0 |
| tolerance degree | : ± 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 475 |
| rack travel mm | : 5.30 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.80
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.50
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.95
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.80
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 12.40
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 113.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

N01

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 98.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.05.97
Test oil : ISO 4113

Combination No. : 0 400 074 872

Injection pump
Pump designation : PES4M55C320RS192
EP type number : 0 410 054 932

Governor
Governor design. : RSF360/1900M90
Governor no. : 0 420 021 295

Cust. part No. :

Customer-spec. information

Customer : MB-FKW
Motor : OM601 D23 LA
Power kW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

N02

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.5

Tolerance
cm³/1000 strokes : ± 0.7

Check tolerance
cm³/1000S. : ± 1.7

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 3.5

Rated speed rpm : 360

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : ± 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.00
Tolerance mm : ± 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Ref. pressure
ALDA / ADA hPa : 1850

Del. quantity
cm³/1000 strokes : 59.5

Tolerance
cm³/1000 strokes : ± 0.7

Check tolerance
cm³/1000S. : ± 1.7

Spread
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 3.5

RATED SPEED

Tolerance mm : ± 0.20

Rated speed rpm : 2600

rack travel mm : 0.50

Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

N03

CRT mm max. : 1.95

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 360

rack travel mm : 6.00

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.00

Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 6.00

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.80
Tolerance mm : ± 0.05

Rated speed rpm : 1500
rack travel mm : 13.20
Tolerance mm : ± 0.10

Rated speed rpm : 1900
rack travel mm : 12.50
Tolerance mm : ± 0.15

Rated speed rpm : 900
rack travel mm : 11.15
Tolerance mm : ± 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1600
rack travel mm : -0.25
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 900

Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -2.65
Tolerance mm : \pm 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -4.30
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1900
Spreed
Del. quantity
cm³/1000 strokes : 55.5
Tolerance
cm³/1000 strokes : \pm 1.2
Check tolerance
cm³/1000S. : \pm 2.2
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : \pm 0.7
Check tolerance
cm³/1000S. : \pm 1.7
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : \pm 0.7
Check tolerance
cm³/1000S. : \pm 1.7
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.2
Check tolerance
cm³/1000S. : \pm 3.2
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 54.3
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 8.5

LOW IDLE

Rated speed rpm : 360
rack travel mm : 6.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000s. : \pm 2.3
Speed
Check tolerance
cm³/1000s. : 1.5

control lever
position degree : > 42.00

control lever
position degree : < 39.50

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Rated speed rpm : 360

Current A : 1.80

Rated speed rpm : 2600

Rack travel in mm : 0.50

Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 360

Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.05.97
Test oil : ISO 4113

Combination No. : 0 402 076 814

Injection pump
Pump designation : PES6P120B320RS3382
EP type number : 0 412 026 803

Governor
Governor design. : RSV425...1100POA669
Governor no. : 0 421 833 572

Cust. part No. : 836354708

Customer-spec. information

Customer : SISU
Motor : 645 DSIE
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 425

Rack travel in mm : 4.80
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 16.0

Tolerance
cm3/1000 strokes : +- 2.5

Check tolerance
cm3/1000S. : +- 5.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500

Del. quantity
cm3/1000 strokes : 206.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

N07

Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.80
Rated speed rpm : 1145
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1225
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1330

LOW IDLE

control lever
position degree : 74.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 4.30
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 425
rack travel mm : 4.80
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.20
Tolerance mm : +- 0.05

Rated speed rpm : 1100

rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 825
rack travel mm : 12.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.20
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 940
rack travel mm : 2.50
Tolerance mm : \pm 0.10

Pressure hPa : 470
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

N08

Del. quantity
cm³/1000 strokes : 126.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 239.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 425

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.95
Test oil : ISO 4113

Combination No. : 0 400 866 202

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV400...1000A0C2190
: -74R
Governor no. : 0 420 233 313

Cust. part No. : 3921142

Customer-spec. information
Customer : CDC
Motor : 6 CT 8.3
Power KW : 151.4

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 10.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 124.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rack travel in mm : 5.70
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 124.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

N10

CONTROL LEVER

control lever
position degree : 90.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 11.10
Rated speed rpm : 1055
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1115
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1175

rack travel mm : 4.00
Rated speed rpm : 1120
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Control lever difference
Grad : 15.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400
rack travel mm : 5.70
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15

Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rack travel in mm : 5.70
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.95
Test oil : ISO 4113

Combination No. : 0 400 866 209

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV400...1050AOC2190
: -81R
Governor no. : 0 420 233 320

Cust. part No. : 3921089

Customer-spec. information

Customer : CDC
Motor : 6 C 8.3
Power KW : 89.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 9.65
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 80.5 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 6.5 |
| <hr/> | |

| | |
|-------------------|----------|
| Rack travel in mm | : 5.70 |
| Tolerance mm | : ± 0.10 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|----------------------------------|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1050 |
| Aneroid pressure hPa | : - |
| Del. quantity cm ³ /1000 strokes | : 80.5 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.5 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 95.0 |
| tolerance degree | : ± 4.0 |

| | |
|-----------------|--------|
| RATED SPEED | |
| rack travel mm | : 8.60 |
| Rated speed rpm | : 1100 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1140 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1200 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1140 |
| Tolerance 1/min | : ± 15 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 77.0 |
| tolerance degree | : ± 4.0 |

| | |
|--------------------------|---------|
| Control lever difference | |
| Grad | : 18.0 |
| tolerance degree | : ± 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 5.20 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 5.70 |
| Tolerance mm | : ± 0.10 |

TORQUE CONTROL

| | |
|-----------------|----------|
| Rated speed rpm | : 1050 |
| rack travel mm | : 9.65 |
| Tolerance mm | : ± 0.05 |

| | |
|-----------------|---------|
| Rated speed rpm | : 750 |
| rack travel mm | : 10.50 |

Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 15.0

LOW IDLE

Rack travel in mm : 5.70
Tolerance mm : +- 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.05.95
Test oil : ISO 4113

Combination No. : 0 400 866 213

Injection pump
Pump designation : PES6A100D320/3RS2691
: -4
EP type number : 9 410 230 030

Governor
Governor design. : RSV450...1100A0C2190
: -83R
Governor no. : 0 420 233 322

Cust. part No. : 3921093

Customer-spec. information
Customer : CDC
Motor : 6CT830
Power kW : 150.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 121.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rack travel in mm : 5.40
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1160
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 85.0
tolerance degree : ± 6.0

Control lever difference
Grad : 23.0
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.90
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450
rack travel mm : 5.40
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.15

Tolerance mm : \pm 0.05
Rated speed rpm : 750
rack travel mm : 13.20
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 136.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rack travel in mm : 5.40
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.95
Test oil : ISO 4113

Combination No. : 0 400 866 214

Injection pump
Pump designation : PES6A100D320/3RS2691
: -4
EP type number : 9 410 230 030

Governor
Governor design. : RSV450...1100AOC2190
: -84R
Governor no. : 0 420 233 323

Cust. part No. : 3921095

Customer-spec. information
Customer : CDC
Motor : 6CT830
Power KW : 134.2

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

| | |
|-------------------------------|----------|
| Del. quantity | |
| cm ³ /1000 strokes | : 104.5 |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. | : ± 3.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. | : 6.5 |
| <hr/> | |
| | |
| Rack travel in mm | : 5.80 |
| Tolerance mm | : ± 0.10 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|---------|
| Rated speed rpm | : 1100 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm ³ /1000 strokes | : 104.5 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 3.0 |
| Spreed | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| Check tolerance | |
| cm ³ /1000S. | : 6.5 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 103.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 10.20 |
| Rated speed rpm | : 1145 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1225 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1230 |
| Tolerance 1/min | : ± 15 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 85.0 |
| tolerance degree | : ± 4.0 |

Control lever difference

| | |
|------------------|---------|
| Grad | : 18.0 |
| tolerance degree | : ± 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 450 |
| rack travel mm | : 5.30 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 450 |
| rack travel mm | : 5.80 |
| Tolerance mm | : ± 0.10 |

TORQUE CONTROL

| | |
|-----------------|----------|
| Rated speed rpm | : 1100 |
| rack travel mm | : 11.25 |
| Tolerance mm | : ± 0.05 |

| | |
|-----------------|---------|
| Rated speed rpm | : 750 |
| rack travel mm | : 12.10 |

Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 113.5

Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.50

Tolerance mm : +- 0.50

Del. quantity
cm³/1000 strokes : 148.0

Tolerance
cm³/1000 strokes : +- 10.0

Check tolerance
cm³/1000S. : +- 15.0

LOW IDLE

Rack travel in mm : 5.80

Tolerance mm : +- 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.97
Test oil : ISO 4113
Combination No. : 0 402 736 852
Injection pump
Pump designation : PES6P120A120RS7332
EP type number : 0 412 726 909

Governor
Governor design. : RQV350...900PA964
: -25K
Governor no. : 0 421 815 418

Cust. part No. : 3927923

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.25

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 375

Rack travel in mm : 7.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : \pm 6.0

RATED SPEED

rack travel mm : 13.90
Rated speed rpm : 1075
Tolerance 1/min : \pm 15

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : \pm 5

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 6.0

Control lever difference

Grad : 49.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : $>$ 8.10

Testing:

Rated speed rpm : 375
rack travel mm : 7.00
Tolerance mm : \pm 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 15.25
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 14.35
Tolerance mm : \pm 0.20

Rated speed rpm : 1000

rack travel mm : 15.00
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 9.70
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 900
Pressure hPa : 825
rack travel mm : 13.80
Tolerance mm : ± 0.20

Pressure hPa : 370
rack travel mm : 11.15
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 226.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.40
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 7.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 403 466 152

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV500...1100MWOA368
Governor no. : 0 420 085 251

Cust. part No. : 3926878

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 143.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 15.00
Difference °CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.15
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.00
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

rack travel mm : 6.00
Rated speed rpm : 1230
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Rated speed rpm : 1400

rack travel mm : 6.00
Rated speed rpm : 1230
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 14.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 4.65
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500
rack travel mm : 5.15
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.00
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 11.70
Tolerance mm : ± 0.10

Rated speed rpm : 1000
rack travel mm : 11.45
Tolerance mm : ± 0.20

Rated speed rpm : 950
rack travel mm : 11.50
Tolerance mm : ± 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.30
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 590
rack travel mm : 10.80
Tolerance mm : ± 0.20

Pressure hPa : 545
rack travel mm : 10.60

Tolerance mm : ± 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900

Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 141.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 117.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 1.00

Del. quantity
cm³/1000 strokes : 177.0

Tolerance
cm³/1000 strokes : ± 10.0

Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 500

Rack travel in mm : 5.15
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 22.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : +- 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet